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Original Communications.

SOURCES OF FAILURE IN THE USE OF OXYGEN.

By Samuel S. Wallian, A.M., M.D., New York.

THE therapeutic use of oxygen is becoming much more general than ever before in the history of medicine; but it is questionable whether the efforts, thus far, have resulted in more than a very superficial and imperfect realization of the possibilities of this agent. It is not enough to assume that, since oxygen is everywhere, and at all times essential to the maintenance of animal life, it is therefore, necessarily, a valuable therapeutic agent. Yet this is the substance of the argument used by many of those who have casually investigated it.

At the bottom of all causes of failure to realize expected or desired results from the clinical exhibition of this gas is the want of proper appreciation or knowledge of the element itself, its varying conditions, modes of preparation and purification, and best methods of exhibition. To most operators oxygen is oxygen, no matter how evolved, how influenced by treatment or contact, how stored, or how exhibited. For example, a physician who decides that this agent is indicated in a given case, sends to some supply depot for a cylinder of the compressed gas, prepared, he knows not how carelessly, containing, no-

body, not even its manufacturer, knows what per cent. of free chlorine and other deleterious impurities, nor how stale from long standing. This gas is brought to the bedside of the patient, and is administered unmethodically, perhaps under strong pressure, and with no definite idea as to the quantity to be used or frequency of exhibition. Any other remedy, used with as little intelligence and method, would hardly be expected to produce other than unsatisfactory results.

As an illustration, it is well known that carbon exists in diverse forms and conditions, each as unlike the other as charcoal is unlike diamond. Silica is met with in the unattractive condition of common sand, and also in the exquisite forms of crystals, some of which are scarcely distinguishable from diamond itself. Other similar examples may be recalled or will suggest themselves.

It begins to be admitted that oxygen exists in almost as widely different forms. Under immense pressure and at an exceedingly low temperature, it has been reduced to a liquid, and, finally, to a solid state, in which latter condition it resembles snow. Ozone is presumed to be allotropic or high-tension oxygen. Atmospheric oxygen, which is the condition by which all oxygen is wont to be measured, is comparatively passive. The latter may be likened to the charcoal of the carbon series, while nascent oxygen more properly represents the diamond of the same series.

Very few among the many practitioners now experimenting with this agent have given its varying conditions even a passing thought. The greater part of the gas used by medical men is evolved by any of the crude processes at present in vogue; ordinarily by heat applied to a copper or iron retort containing chlorate of potassium and peroxide of manganese. At the moment of its evolution, as may be readily ascertained, it is in a *nascent* and intensely active condition. It has scarcely occurred to the ordinary chemist, or to the experimenting therapeutist, even in this age of electrical wonders, that this, according to Faraday, most magnetic of all the gases, unthinkingly retained for some time in contact with non-insulated metallic containers, may be thereby gradually deteriorated and caused to lose some of its chemical, vital or dynamic, and essential conditions and characteristics. The evolved gas is usually conducted through certain aqueous solutions into a gasometer made of metal. From this receptacle most of the oxygen of commerce is drawn through metal conductors into a pump of like material, by which it is forced into iron cylinders, the degree of compression varying from two hundred to two thousand pounds per square inch. The gas is retained in these cylinders for an indefinite period, and used as required, the dispenser innocently presuming that by its casual and desultory inhalation, his patient will realize all the benefits that can be derived from the use of this agent.

Even the chemists have but imperfectly studied the varying and essentially different conditions of this active element, or the various influences which are constantly operating to modify it. It cannot be denied that it is a great convenience to be able to procure oxygen, or any other gas, intended for medicinal use, compressed in readily portable cylinders. It is thus quite frequently available in emergencies and other cases when other forms of the gas would be unattainable in time, or entirely out of the question. For this reason this ready-to-hand method of using this gas will no doubt continue to be popular. Perhaps chemists will eventually come to the rescue, by suggesting some feasible method of restoring to stale gas its original activity, at the moment of using it, or of so insulating or protecting the containing cylinders as to practically prevent its deterioration.

Some inquiry has been broached as to the relative value of moist and dry oxygen, but this is another point which has received very little attention at the hands of experimenters. Nevertheless, the investigations of Brereton Baker have been the source of valuable suggestions. He showed—1. That charcoal, which burns with such brilliancy in ordinary oxygen gas, can be heated to redness in thoroughly desiccated oxygen without showing any tendency to further combustion. 2. That sulphur, which in moist oxygen burns with a brilliant flame at a temperature of 320° C., in oxygen which has been deprived of all its moisture can be sublimed or distilled without igniting. 3. That phosphorus itself can be distilled in similarly dried oxygen without igniting; whereas in moist oxygen it promptly ignites at 60° C. 4. That ordinary phosphorus does not become luminous, even at high tension, in perfectly anhydrous oxygen.

These experiments seem to have been carefully conducted, and clearly indicate that absolutely dry oxygen does not possess its normal combining activities or affinities.

Again, Richardson's experiments have been repeatedly cited, showing that oxygen may be

devitalized, as he terms it, without being chemically changed; in which condition it fails to support life in warm-blooded animals, although responding to all the usual tests for pure oxygen, and being still capable of sustaining life in reptiles and other cold-blooded species.

Whether a sample of oxygen designed for exhibition in a given case has been largely deprived of its chemical or vital intensity, its combining activity, its moisture, or any other therapeutic essential on which may depend what may be not inaptly termed its vital affinities, has not been asked, and is scarcely thought of. Was it nascent or stale? moist or dry? Was it normal in its intensity, dynamic and full of combining integrity, or had it been devitalized by some occult influence too impalpable for detection by known chemical tests? In a word, was it practically flat, stale, and unprofitable?

The discrepancies which appear in different reports of cases treated with this agent may unquestionably be accounted for by the different conditions under which the gas was evolved, stored, and used. Ignoring essential points in this direction, negative or indifferent results are an inevitable consequence, and therefore really possess little therapeutic significance.

If these premises be admitted, it follows that the best results thus far obtained from the clinical use of oxygen have been for the most part empirical and accidental rather than rational and premeditated. It also follows that by the more general use of freshly evolved gas several of these sources of failure would be effectually forefended.

Another point to which little attention has been given is the method of inhaling. Those who permit their patients to passively inhale a few gallons of the gas, once or twice *per diem*, have by no means done all that is possible towards realizing the possibilities of the treatment. Most patients not specifically instructed inhale very imperfectly, portions of the lungs being actually collapsed and habitually unused. Such patients may be decidedly benefited by a course of oxygen as they would be by any form of lung gymnastics or exercises which tend to induce or compel more complete respiration, their general vitality being increased in proportion to the increase of respiratory vigor, and consequent increase of absorption, oxidation, and elimination which follows.

The act of respiring oxygen, as usually practised, is too much hurried,—that is to say, a second inspiration follows the first before the blood has had time to traverse the system. Hence, practically the same volume of blood remaining in the lungs, and having already absorbed the gas to its saturation-point, can appropriate no more, and the inhaled gas is simply rejected during expiration. This is a common and serious source of failure on the part of those who are conscientiously testing the treatment. It is also sometimes very difficult to teach patients how to inhale properly. The normal capacity of an average pair of lungs is from one hundred and thirty to two hundred and fifty cubic inches. The average capacity ordinarily utilized, even by persons in comparatively healthy condition, varies all the way from seventy-five to one hundred and fifty cubic inches. In case of invalids this average falls as low as forty or fifty cubic inches, or even less. Many patients who, although quite willing to make the necessary effort, cannot, until after considerable coaching, inspire more than twenty or thirty cubic inches at an effort, simply because they have never properly practised the breathing habit. This is especially true of smokers, who for some time persist in drawing in the gas as they would the smoke of a cigar or pipe. Even a physician, who was himself a constant smoker, made very many efforts before he succeeded in overcoming this apparently stupid tendency to merely fill the mouth and throat, as if he were mincingly enjoying his fragrant Havana.

To secure any adequate results patients must be carefully instructed in all the details of a thorough accomplishment of the respiratory act. The chest is to be erect, or even thrown forward, and the lungs are to be filled as nearly as possible to their fullest capacity. The inspired gas should be retained as long as can be conveniently done, and finally expelled, if feasible, through the nasal passages. Some practitioners insist that it is better to inspire also through the nasal organ, this being the normal route for atmospheric respiration. At least a dozen pulse beats should intervene between the inspirations to insure a fresh access of blood to the lungs. It is also greatly to his advantage, and generally quite necessary, to cause the patient to adopt a system of chest gymnastics, using any of the various means in vogue for regularly and systematically exercising the thoracic muscles and expanding the chest. Imperfect breathing habits, from impediments of dress, cramped bodily posi-

tions, want of proper exercise, or from merely passive carelessness and chronic neglect, are unquestionably a prolific source of consumption, indigestion, and other serious chronic diseases. In this connection a spirometer is a valuable adjunct, but should be supplemented by vigorous and systematic chest-movements, and developing exercises in the open air.

In this connection it ought to be borne in mind that *the muscular system is the ultimate storehouse and principal utilizer of the oxygen taken into the system.* This is proven by the fact that carbonic acid has its origin chiefly in the muscles.

The quantity of oxygen to be inspired at a sitting varies according to the nature of the case; usually eight hundred to one thousand cubic inches is as much as the system can utilize, for the time being. To secure the best results this may be profitably repeated at least twice a day. This quantity, it may be well to note, refers to the undiluted gas. But undiluted gas should seldom be given. Ordinarily, to use it thus, is poor economy, since not more than twenty-five per cent. of a given volume of undiluted gas is really, and at the moment, absorbed and utilized. In all cases, except those of asphyxiation, narcotic poisoning, syncope, and a few other emergencies, such as puerperal convulsions, chloroform narcosis, uræmic poisoning, etc., it is better to use the gas well diluted. By analogy, and on the theory that dilution facilitates distribution, in ordinary cases, more oxygen will be realized from inhaling a fifty per cent. mixture than from the inhalation of pure gas.

As regards adjuncts to the gas, this is another neglected point. Very few practitioners have given a thought to the subject. A number of experimenters, it is true, have noted the apparent benefits resulting from the use of a mixture of oxygen with a certain percentage of monoxide of nitrogen. The latter gas is of itself an oxidizing agent, and when properly diluted is decidedly exhilarating. It also produces marked effects, of a soothing character, upon a disturbed or overwrought nervous system. Hence its modifying influence, when mingled with oxygen, are in many cases very desirable. It seems to act as a synergist, and to enhance the effects of oxygen itself, perhaps by aiding in its more rapid absorption into the blood and distribution throughout the system.

No rational aid or auxiliary should be neglected, and there are many, the more important ones relating especially to diet and exercise, not neglecting bathing and general hygiene, with such appeal to indicated remedies as is required by the exigencies arising in each case.

Another reason for shortcomings and unsatisfactory results in the use of oxygen is the restriction of the methods of administration exclusively to inhalation. The respiratory tract, it should be remembered, is but one avenue to the system. Experiments with the gas, used by means of cutaneous absorption and by absorption from the alimentary tract, have not been extensive, but they indicate beyond question that these avenues are not only valuable, but are often more available, and insure more prompt and thorough results, in a rather large class of cases, than can be otherwise attained.

The same rules respecting the quality and condition of the gases used, as have already been indicated, must also here obtain and be insisted upon. Again, it would seem, from the limited experiments yet reported, that oxygen, compressed in water as a vehicle, retains its vital properties in a better degree, or, at least, in a more readily available condition, than when used in the usual gaseous state. Prompt effects are almost invariably observed after the imbibition of even very small quantities of the gas in aqueous solution under pressure. This is especially true of gastric and intestinal disorders, such as anorexia, obdurate vomiting, gastric catarrh, neuralgia of the stomach, and in all cases where there is inability to retain food. This oxygenated water (not a solution of peroxide of hydrogen, but oxygen compressed in distilled water) is almost invariably retained on a sensitive stomach when all forms of nourishment are persistently rejected. The quantity or volume received by the system through this method is comparatively small, but it seems to be far more promptly and completely absorbed and assimilated than when introduced through the respiratory tract. It is proper to note in this connection that water charged with oxygen alone has not given the complete results which may be derived from the use of a mixture of this gas with nitrogen monoxide, the proportions varying from equal parts of the two gases to two parts of oxygen and one of monoxide. It is to be regretted that this method of using the agent has not been made more common and more available in general practice, no competent company or firm as yet having ventured to prepare it on a commercial scale, as it is to be hoped will

ere long be done. To give the best product, the water, as stated, should be distilled, and should receive the mingled gases under a pressure of one hundred to one hundred and fifty pounds to the square inch; and, to insure the best effect, it should, if feasible, be administered through a tube attached directly to the nozzle of the containing siphon; or, if bottled, by means of a proper siphon-tap, various forms of which can now be had in the market,—so that the contained gas shall not largely escape by being first allowed to flow with force into an open tumbler or other receptacle, after the method of using soda-water and other effervescent drinks.

The method of utilizing the cutaneous surface, by means of oxygen baths, either hot or cold, is as follows: The body of the patient is to be encased in a convenient cabinet, nearly or quite gas-tight, the head and face being unconfined. The body is first to be prepared by means of dry steam heat, as in the Turkish hot-room, until free diaphoresis is induced. A current of oxygen is then to be admitted from near the bottom of the cabinet. Oxygen being heavier than the contained air and vapor, the latter are allowed to escape through an opening at the top, until a lighted match shows the presence of the gas in the escaping current. Fresh oxygen is to be continuously introduced for the space of thirty or forty minutes, or longer, according to the case, when the patient is to be removed from the cabinet, quickly rubbed dry, and a general glow produced by means of friction and massage. This method of administering the gas promises most in complicated skin-diseases, whether simple or specific; in blood-poisoning; in certain forms of infectious diseases, as small-pox, scarlatina, diphtheria, etc.; in the typhoid state, and in all such cases of general debility as are accompanied by torpor or incompetency of the respiratory and digestive organs. It requires considerable care and some special apparatus, but in many cases the results will warrant the effort and outlay. A portable cabinet can be constructed by any ordinary cabinet-maker or mechanic, and various forms are offered for sale by several manufacturers. Portable apparatus for the instantaneous generation of the gas is also now available, and becomes a necessity in many cases if the most perfect results would be obtained. In case of the oxygen bath, the gas should be conducted directly from the generator to the cabinet; and this necessitates a generating apparatus which is capable of supplying a moderate but uninterrupted volume of the gas rather than one which is intermittent in its action. Such an apparatus has been devised and is now on the market. It can be procured through any dealer in surgical instruments.

Some time ago the writer advised that, in certain cases, the gas should be passed through drying material, to deprive it, as far as possible, of moisture. Brereton Baker's experiments with artificially-dried oxygen, already cited, would indicate that this was a mistake, and that, even in affections characterized by profuse catarrhal conditions, the use of gas containing more or less moisture is decidedly preferable. In view of this fact, the gas should be passed through a bottle of pure water or some aqueous solution, after its exit from the washing and filtering-jars, before being inhaled. In other words, the last bottle in the purifying series should contain aqueous fluid rather than a desiccating material.

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*TREATMENT OF ERYSIPELAS OF TRUNK AND LIMBS BY MEANS OF WARM-WATER BATH.**

By Dr. A. Rose, New York.

In addition to several papers on the treatment of erysipelas, especially the "operative treatment" (so called by Kraske and Riedel), which have recently been read before this Society, I wish to speak on a method I have practised for years, and which method (on account of the invariably good results attained by me) deserves to be named and practised on a par with Kraske-Riedel's operation.

Our subject, the treatment of erysipelas, is at present entitled to special consideration. It is desirable that the experience with the latest operative treatment or other equally valuable, or, even better, therapeutic measures, should be disseminated.

The warm-water bath was not mentioned, either in our papers on the treatment of erysipelas or in the discussion on these papers.

It is possible, even probable, that others have applied this means in the treatment of erysipelas of the limbs and the trunk, but I have found no reports in the literature, nor have I heard of it from other sources. If my

* Read before the German Medical Society of New York, December 2, 1889.

favorable results should be confirmed by the experience of others, it must appear remarkable that such a simple method, as the one practised by me, has heretofore been overlooked.

In 1872, Dr. Herman Guleke and myself introduced in St. Francis Hospital of this city treatment of wounds by means of the warm-water bath, and practised this method quite extensively. This happened at the period of the so-called "open-wound treatment." Professor Frank H. Hamilton, who learned from us this method of immersion, became its enthusiastic apostle among our American colleagues. The importance of the permanent bath at that time—that is, at the period when Lister's dressing was not yet introduced, or at the pre-antiseptic period—may be best judged of by reading the earlier editions of Billroth's "General Surgical Pathology and Therapeutics," and, moreover, Schede's lecture "On Injuries of Hand and Fingers" in Volkmann's collection.

As we all know, either by our own experience or through the literature quoted above, fresh aseptic wounds kept in warm water will heal without complications. To a certain degree the permanent bath is as powerful a means of controlling inflammation as the modern antiseptic dressings. By relating two cases in my practice, I wish to demonstrate to you that erysipelatous inflammation, even in an advanced state, can be reduced by means of the permanent warm-water bath just as well, and perhaps more surely, than by the Kraske-Riedel method.

About a year ago Dr. Treskatis requested me to see a woman with erysipelas of the head and forearm. The erysipelatous inflammation had then existed for some days. The physician who had first seen the case had ordered ice-water applications. Dr. Treskatis had substituted an antiseptic ointment. I found the patient with a high fever, complaining of much pain; the left hand, the whole forearm, and part of the upper arm erysipelatous. The tips of the fingers showed incipient gangrene. This was one of those rare cases in which the erysipelatous œdema assumes such proportion that, in consequence of high tension of the tissues, the circulation in the extremities—in our case the finger-tips—becomes arrested and gangrene sets in. It is not impossible that the ice-water applications aided in bringing on this condition. I at once had the arm placed in a warm-water bath as far up as the erysipelas extended. The bathing apparatus consisted of an oval-shaped wash-boiler; bandages reaching from one handle to the other served to suspend the arm under water in such a manner that the hand and the elbow were on the same level.

When I visited the patient the next day, fever and pain had completely subsided, the appetite, previously wanting, had returned, the general condition was correspondingly satisfactory,—in short, the case presented from within twenty-four hours most marvellous change. Thus ended the erysipelatous inflammation. On account of the gangrenous parts, I had the bath continued for several days and nights. I shall not occupy your time with the final history of the case.

The second case was that of Fred. K., 3 years of age. This child had sustained an insignificant abrasion of skin on the knee, which abrasion had become inflamed. On August 5, 1889, the mother noticed circumscribed redness around the small lesion. On August 7 she sought the advice of a druggist, a man who in his neighborhood enjoys great popularity as a medical adviser. The treatment consisted in the application of some liquid. Notwithstanding the progress made by the erysipelas, and constant high fever, the druggist, who saw the child daily, neglected to advise the mother to consult a physician. At last, in the evening of August 10, the child was brought to my office. The erysipelas then extended from the toes to the upper third of the thigh. Temperature was 105°, the patient, who had a phenomenally strong voice, was crying constantly, especially at every touch of the diseased parts. While the child was under the influence of chloroform, I washed the affected limb first with soap and water, then with ether, and, finally, with a five per cent. solution of carbolic acid. I then applied the Kraske-Riedel fence. I found barely space enough on the thigh—anteriorly parallel to Poupart's ligament, and posteriorly parallel to and directly below the gluteal fold—to make the scarifications in the healthy skin bordering the erysipelas. The whole limb was then covered with gauze saturated with a two per cent. solution of carbolic acid, and was constantly kept moist with this solution.

When I again saw the child on the same evening, about three hours after the operation, its temperature was reduced, it slept quietly, for the first time in several days. As I did not wish to disturb this sound sleep, I did not take the temperature.

The following day I found the temperature at 103.5°. The erysipelas had traversed the drawn boundary. The powerful voice of the child resounded incessantly, and it acted in such a demonstrative manner that the whole house became alarmed.

On careful examination, I was able to convince myself that the fence had been applied properly on the preceding evening, that the erysipelas had been enclosed exactly; but I must confess that the task of keeping the uppermost part of the thigh aseptic was a rather difficult one.

I at once removed all dressings, placed the child in a bath-tub filled with warm water, and remained until it was quieted.

The warm bath relieves pain most wonderfully. I cannot understand why so many means and methods of treatment are recommended against burns and the effects of freezing, while in the warm bath we possess the very ideal means against these troubles of whatever degree and extent. It keeps these injuries aseptic, and is more soothing than anything else. Napoleon, on St. Helena, suffering from cancer of the stomach, appreciated highly this effect of the warm bath. He often used to remain half and even whole days in the bath. "If my captivity should be extended to my corpse, I wish to be buried at the foot of the fountain to which I owed some relief." (Si ma captivité doit durer pour mon cadavre, je désire être enterré au pied de la fontaine à laquelle j'ai dû quelque soulagement.) These were among his last words. At Longwood there was scarcity of water; the fountain of which Napoleon speaks in his testament, and from which the water was brought, was situated at some distance, and Sir Hudson Lowe, on account of the difficulties in supplying the water for the baths, wanted to deprive him of them, saying, "Why does he need to stew himself in hot water?"

My little patient after a few minutes felt comfortable in the water. In the evening the temperature was normal. He slept the whole night in the bath. As there was no elevation of temperature observed during the following day and evening,—of the 12th of August,—and as the general condition was all that could be desired, I took him out of the water, anointed the limb which had been the seat of inflammation with an indifferent ointment, and dressed it with cotton. For some days redness of the skin and swelling remained, but this may follow after erysipelas, and it follows after any permanent bath of some duration. The child, however, remained free from fever as well as pain.

As mentioned above, I quite frequently made use of the warm-water bath in cases of erysipelas of the limbs, but shall abstain from enumeration of additional cases.

To explain the effect of the warm bath, we have to consider the following facts: Cutaneous erysipelas of the trunk and the extremities is a capillary lymphangitis of the cutis, brought on by infection with Fehleisen's streptococci. The clefts of lymphatics and lymphatic vessels of the skin, it is true, are not the only channels of invasion of the cocci of erysipelas. It is likewise true that they may settle on the mucous membranes, but this circumstance is not within the scope of this paper. Wherever these microbes settle, they show a preference for spreading by way of the lymphatics. From the natural history of Fehleisen's cocci it is to be noted that their cultures develop well at 70° F., that they are luxuriously prolific at 95° to 100°, very much so at 103°, less so at 105°, not at all at 107° and above, and that they surely die in a temperature of 120°. At temperatures as low as 30° to 20° F. they remained alive; in a still lower temperature they probably cannot live.

I now beg leave to offer the following explanation of the effect of immersion: After a part of our body has remained in the warm bath for a comparatively short time, it soaks and swells, probably by imbibition. In consequence of this swelling and soaking of the tissues, the clefts of the lymphatics and the lymphatic vessels are compressed and closed, the centre of infection is shut off. No cocci of erysipelas can then penetrate, and, as soon as the centre of infection is shut off, the temperature of the body will return to its normal standard. It is quite possible that the vitality of the cocci is reduced by the water-bath itself.

As stated above, the water bath is a powerful means of keeping inflammation within proper limits, it causes a permanent and considerable reduction of warmth, much more reduction than can be produced by covering the parts with ice-bags, and a temperature of the water only a few degrees below blood-heat, will suffice for this purpose. The parts immersed are most closely surrounded by a cooler, excellent conductor of heat; hence the great effect. In view of the behavior of the cocci of erysipelas in certain temperatures, the antipyretic effect of the bath, however,

cannot serve as an explanation of its effect upon erysipelas.

Concerning the temperature of the bath, I have found 90° to 95° effective and to the patient agreeable. As a matter of course, hot water has to be added from time to time to keep the temperature up to the desired degree.

SOME POINTS IN NEGATIVE THERAPEUTICS.

By G. Walter Barr, M.D., Bridgeport, Ill.

In negative therapeutics tobacco plays, perhaps, the most important *rôle*, with tea as the next article most often interdicted in the treatment of digestive, nervous, and other diseases. Either of these luxuries are in more common use than is alcohol and its congeners.

In certain public dispensaries and among practitioners of my acquaintance, to say the least, there is little idea of differentiating between different kinds of cigars, tobaccos, and teas. Many a man told to stop smoking, and many a woman told to stop drinking tea and coffee, make no attempt to follow the directions of the prescriber, because they do not intend to obey what they deem the most important command at the sacrifice of their comfort. Most of these people can be retained as clients until they are cured and their dietary strictly controlled, I am convinced, by agreeing on a compromise along the following lines. This matter is of so general an importance that I deem it my duty to record my observations and the results of my experiments.

The physiological action of nicotine is well known, and because it is a powerful substance when taken into the animal economy, it is like the notorious bad boy charged with all the trouble that occurs in the neighborhood. Several years ago I was struck with the intense results of a little cigar-smoking on my nervous system, and by the fact that these results had a great variance in details from the physiological action of nicotine as reported by all authorities. This caused me to study the secrets of the cigar-maker's art and the different kinds of cigars from a physiological stand-point.

Cigars are popularly divided into two classes,—"good" and "bad." Each of these classes, or rather all cigars, are properly divided by the initiated into two other classes,—flavored and unflavored. The most popular cigars, and, consequently, the ones most often called "good," are the flavored ones; connoisseurs look with contempt on all flavored goods. At least nine-tenths of the cigars sold in the United States are flavored, and I am confident I am correct in stating the general principle, that *it is not the tobacco, but the flavoring additions to the cigar that are harmful, in a practical sense, to the nervous system and digestion of man.*

The substances most used as flavoring adulterants of cigars are valerian, tonka, and Jamaica rum. There are many recipes for flavoring, each jealously guarded in the factory in which it is used; but, like the liniment formulæ kept in families, they are all very similar. The quantity of each drug in one cigar is very small, indeed, but when smoked, the action of the drug is far out of the usual ratio of dose to effect. One highly-flavored cigar smoked short will produce in a susceptible person the headache characteristic of an overdose of valerian and other effects of that drug more or less modified by the other ingredients of the flavoring material. The total effect of a highly-flavored cigar is to depress the action of the stomach and liver, slow the heart, produce a feeling of languor, and a headache between the eyes dull to sharp, according to susceptibility. The effects depend for intensity on the quantity of flavor and the susceptibility of the person to its action. Many persons not accustomed to their use can bring on all the symptoms of a torpid liver—anorexia, coated tongue, constipation—by smoking a few flavored cigars. The same persons can smoke a dozen unflavored cigars a day without in the least degree producing this effect. Flavored cigars tend to retard digestion; unflavored cigars do not. The effect of flavored cigars on the nervous system is manifold greater than that of unflavored ones.

The moral is, cause the man whom smoking is injuring to quit smoking *flavored* cigars, and in most of the cases you will accomplish all you desire.

The real difficulty is to distinguish flavored cigars. No reliance whatever can be placed in the word of the average salesman, as I have clearly determined by experiment. Many of them depend on the statements of the manufacturer's agent to them, which are very unreliable as a rule. The best method of testing is to draw through an unlighted cigar in a reverse direction,—the end usually lighted being in the mouth,—and then the presence of flavor can usually be determined by the

practised taste. All cigars which leave on the bottom of the box a brown stain are flavored, but the reverse does not obtain. A box of cigars may be flavored so as to deceive experts, but this is an extreme case. If the physician is not a judge on this point himself, he may get a friend engaged in manufacturing the weeds to pick out a few brands of unflavored cigars—of another's manufacture—sold in the town, and recommend these to clients who will smoke.

As to tea-drinking, the problem and its solution is much more simple. *Iced tea has none of the physiological action of theine* if it is kept ice-cold for a short time. I have known a man of nervous temperament, who is kept awake all night by a single cup of tea, to drink a half-gallon of iced-tea during the evening and sleep soundly at his usual time of retiring. Others made very "nervous" by hot tea, I have caused to drink large quantities of iced-tea with no appreciable effect. This fact, which I have never seen mentioned, opens up a very interesting field for investigation, and I hope in a future paper to detail the proposition of which this is probably a corollary. If the tea-grounds are allowed to remain in the liquid, the iced-tea is usually kept long enough before drinking to dissolve more tannin than is usual in hot tea; hence the tea should be strained as soon as removed from the fire.

Coffee-drinkers can sometimes be switched off to cocoa when the latter is not contra-indicated. There are no unadulterated chewing tobacco, smoking tobacco, nor cigarettes; the users of these abominations may be deflected to unflavored cigars sometimes.

SOME THERAPEUTIC USES OF BUTTERMILK.

By Stanley M. Ward, M.D., Scranton, Pa.

A RECENT writer, Dr. Henry D. White, of New Jersey, in the *New York Medical Journal*, relates the history of a case of Bright's disease of the kidneys occurring in a large, heavy female, aged 55, in whom no alleviation could be brought about by the ordinary remedies. The patient finally, by her own solicitation, was given buttermilk, the use of which was followed by the happiest results. This use of buttermilk is by no means new, though Dr. White states that he had never in his "reading seen any reference to its use." Who first used it in this connection we are unable to say, but the writer, in the same journal, under date of May 22, 1886, gives the history of a severe case of Bright's disease, with active symptoms, marked more especially by the discharge of phenomenally large quantities of albumen (on several occasions, it being stated, "the urine, under heat and acid, was almost solid in the test-tube"), in which, after the use of iron in various forms, pilocarpine, compound jalap powder, and other drugs more or less indicated, the patient began taking buttermilk, two quarts per diem. Its effects being markedly favorable, the quantity was increased, and from this time the chief reliance was put on this agent, as the writer states that the patient finally used from "six to eight gallons per week." There seems to have been no question in this last-mentioned case as to the diagnosis, direct results obtained from the buttermilk, or ultimate benefit to the patient. Symptoms so well marked could admit of but one explanation. We are told that diminution in the quantity of urine passed, constipation, and headache followed invariably if the supply of buttermilk became exhausted; and, finally, an examination of the urine, made one year and nine months after the first observation, the patient during a great part of this time having been engaged in his usual vocation, revealed the fact that minute quantities of albumen were still present. *A priori*, we should expect from an analysis of buttermilk, and from the knowledge we have of the good results obtained by the use of an almost analogous agent,—viz., skimmed milk,—that it would prove of benefit in those forms of Bright's disease marked by scanty urinary flow, more or less œdema, and, in truth, all those results which follow a clogged and hampered condition of the *tubuli uriniferi*, the desquamative nephritis, or the acute inflammatory form; cases not yet advanced to either atrophy or steatosis, or before degeneration in the blood-vessels and other organs had taken place; in a word, fibrinosis. If we assume this condition to be the ultimatum of a variable number of such cases, great benefit would follow its use.

Pavy speaks of buttermilk as "a thin, residuary liquid, yielded when butter is prepared directly from milk," and gives as an analysis of 100 parts the following:

	Nit. matters.	Fat.	Lactose.	Salts.	Water.
Buttermilk.....	4.1	.7	6.4	.8	88.00
Cow's milk.....	4.1	3.9	5.2	.8	86.00
Skimmed milk.....	3.8	2.0	5.4	.8	.88

Thus, it will be seen that, on account of the large quantity of water and lactose, the fats being in much smaller quantities even than in milk which has been skimmed, an almost ideal diuretic is at hand. It is somewhat strange that buttermilk has been used for its diuretic and laxative properties so little, though we confess that its taste is an objection that in many instances cannot be overcome. In my own practice I have been forced to stop using it several times on this account. The writer has prescribed buttermilk not only in cases of albuminuria, but likewise in cystitis, gonorrhœa, and other affections of the urinary passages with universally good effects. It has seemed to be indicated wherever mucilaginous drinks, administered solely for their soothing effect, are prescribed. The amount of nitrogenized matters present probably adds somewhat to its merits, while the salts give a flavor not at all disagreeable, when it can be taken at all. On the whole, my use of this preparation, though restricted to affections of the kidneys and organs connected therewith, for the most part has led me to esteem it highly and to believe it worthy of great confidence whenever the practitioner desires to excite the flow of urine, to modify its character, or to soothe an inflamed and congested mucous surface over which this excretion is to pass.

Another class of diseased conditions has been relieved by buttermilk,—those affecting the stomach,—the principal symptoms being eructations and vomiting. Eulenberg recommends it in atrophy of the peptic glands. In that condition, known as "sick stomach," a condition dependent on many different causes, it will be found beneficial. Dr. Peare, of Kansas, in these columns (April 15, 1885), drew attention to its use in this connection, and related the histories of four cases, the patients, with a single exception, being infants of less than three years of age. Prompt relief was afforded, even though, in the case of the adult, peritonitis was at the bottom of the gastric disturbance. Vomiting is a symptom, especially in peritonitis, which we all fear and which usually proves exceedingly difficult to combat. My own preference, or rather the preference of my patients, has been for koumiss in treating the vomiting of peritonitis, and only a few times, because it has so happened that the patients have disliked the taste of buttermilk, have I used it.

In that peculiar condition known as the "vomiting of pregnancy" my experience has been favorable with this agent also, though it is altogether likely that in this connection it will fail as often as it succeeds. Buttermilk should always be freshly prepared when it is to be used therapeutically. Few stomachs will retain the bitter nauseousness of buttermilk even a week old. When used to check vomiting, it should be administered ice-cold, and it is best to begin in small quantities,—half a teaspoonful, repeated at short intervals, say every fifteen to twenty minutes for a few doses, then increasing to a whole teaspoonful every half-hour or so, when, if well borne, it is accomplishing the desired result, and should now be given at the rate of a tablespoonful every two hours, or as occasion demands. In the case of children with cholera infantum success in quieting the stomach may often be achieved by interdicting everything else, and using a few drops of *fresh* ice-cold buttermilk at intervals ranging in length according to the severity of the case. The physician will find that frequently buttermilk will not only control the vomiting of the little sufferers with this disease, but will furnish the required nutriment for many hours. When used in Bright's disease, the stomach not demanding especial consideration, the buttermilk is best given at an ordinary temperature, the quantity at the start being an ordinary glassful four times daily, increasing as the severity of the case and the personality of the patient demand. In other genito-urinary affections this quantity will usually be found sufficient, though no harm will ensue by increasing it, and if great *ardor urinæ*, as in cases of gonorrhœa, be present, it may be made strongly alkaline by the addition of a quantity of bicarbonate of sodium.

In conclusion, I have this to say of buttermilk: let no one be deterred from making use of it, either because of its source and connections or because of its easy access. We all, physicians particularly, would do well to remember the story of Naaman the leper. This man, because of the simplicity of his doctor's prescription, almost refused to even try the remedy. Nevertheless, hydrotherapy proved eminently successful in his case when carried out according to directions, and the homely, despised buttermilk, used in proper cases, with no anticipation of miraculous results, will, I feel perfectly well assured, correct many diseased conditions, and bring about the normal state in a manner and in a length of time which shall prove both surprising and agreeable to all concerned.

A CASE OF POISONING BY OIL OF CEDAR.

By R. M. Ellyson, M.D., Washington, D. C.

W. N., male, aged 26, white, who had gonorrhœa, was advised by a friend to take oil of cedar, commencing with 5-drop doses, and increasing the dose gradually until some inconvenience was felt. He increased the dose gradually for several days, but not deriving any benefit from it, thought he would take teaspoonful doses. He took a teaspoonful at 9 A.M., and repeated the dose at 10 A.M. Ten or fifteen minutes after taking the last dose he became dizzy, and had a roaring sensation in the ears; in walking he felt as though he were moving very rapidly, but realized that it was only an illusion. He went to a neighboring drug-store, and almost immediately, on entering the store, fell backward to the floor in a violent convulsion. During the convulsion his face was cyanosed, the mouth open, and the lower jaw fixed. I was then summoned, and reached him about half an hour after he took the last dose, and found him lying in a semicomatose condition on a sofa in the rear of the store. On examination, I found his pupils slightly dilated, respiration good, pulse 130 and weak. While counting the pulse I could feel the muscles of the forearm contracting beneath my fingers. He was perspiring freely, and his skin was warm. I gave him $\frac{1}{12}$ grain of apomorphine hypodermically, which produced emesis in less than a minute. His pulse began to improve immediately after vomiting, and when I left, half an hour later, was 90 and of good volume. The twitching of the muscles also ceased soon after vomiting. The vomited matter had a strong odor of oil of cedar. I called to see him several hours later, and was informed that he had remained unconscious over an hour, and, soon after regaining his senses, he went to his brother's home. For two or three days afterwards he suffered from dizziness and pains in all of his limbs, especially in the joints. There was no gastric or intestinal symptoms following the ingestion of the poison.

In looking over the literature of the subject, I found eight cases reported, of which the following are brief synopses:

Case I.—(Reported by D. C. Holley, M.D., Vernon, Mich.)—Female, mother of three or four children, under the mistaken idea that she was pregnant, took ℥ss oil of cedar to produce abortion. The first effect was felt in her head. Her eyes seemed to be bursting from their sockets, and her head as if it were encircled with an iron band. In a few minutes violent convulsions came on, and she lost consciousness for twelve hours.

Treatment.—Emesis with zinci sulph., chloral, and potass. brom., āā gr. xx, every two hours, to control convulsions. Recovery.

Case II.—(Reported by W. P. Bolles, M.D., pathologist, Boston City Hospital, 1877.)—Female, aged 19, took ℥i to produce abortion. When admitted to hospital (four or five hours after taking the poison) she was insensible, almost pulseless, groaning with every breath, rigid, and somewhat convulsed. An emetic of zinci sulph. and ipecac. being given, and repeated in half an hour, without the desired effect, the stomach-pump was used. The urine was drawn off, and had a strong odor of the oil of cedar. Patient died from heart-failure twenty-six hours after taking the poison.

Case III.—(Reported by F. C. Lawrence, C.M., M.D., Canada.)—Male, aged 35, took ℥ss with suicidal intent. Violent convulsions soon followed, and were controlled by inhalation of chloroform. Emesis was produced by warm water and olive oil. Remained unconscious seventeen hours. For a week afterwards he suffered from headache and irritable stomach. Recovery.

Case IV.—(Reported by F. C. Lawrence, C.M., M.D., Canada.)—Child, 2½ years old, took ℥ii oil of cedar. An emetic was promptly given, producing free emesis. Before the emetic acted it had a violent convulsion. It suffered from gastric irritation for several days afterwards. Recovery.

Case V.—(Reported by S. C. Wait, M.D., Gouverneur, N. Y.)—Female, aged 26, took ℥i to produce abortion. Convulsions followed in twenty minutes, eyes glaring, jaw set, pulse 60, but soon fell to 45. Convulsions lasted one and a half hours; was unconscious ten hours. Failed to produce abortion.

Treatment.—Emetic zinci sulph. Recovery.

Case VI.—(Reported by S. C. Wait, M.D., Gouverneur, N. Y.)—Female, aged 32, took an unknown quantity to produce abortion. Symptoms same as Case IV., and the same treatment followed, but patient died of heart-failure about an hour after taking the poison.

Case VII.—(Reported by S. C. Wait, M.D., Gouverneur, N. Y.)—Female, aged 17, took ℥i with suicidal intent. Was seen by Dr. Wait fifteen minutes after taking the poison. She had a convulsion before an emetic could be given, but an emetic of zinci sulph. was given as soon as the first convulsion ceased, producing free emesis. She lost consciousness

during the first convulsion, and remained unconscious six hours. Pulse 50; breathing stertorous. An hour after taking the poison her face became livid, heart weak, and death seemed inevitable. Was bled from arm, which was followed by immediate improvement. After gaining her senses she complained of pain in her stomach and dizziness. Recovery.

CASE VIII.—(Reported by S. C. Wait, M.D., Gouverneur, N. Y.)—Female, aged 17, took an unknown quantity to produce abortion. The symptoms were similar to Case VII., and the same treatment followed, but the patient died from heart-failure in an hour.

Of the eight cases, five of them took it to produce abortion, which it failed to do in all of the cases; two took it with suicidal intent, and one accidentally. Three of the cases proved fatal, all having taken the oil to produce abortion.

The autopsies in the three fatal cases showed slight inflammation of the lining of the stomach and intestines. In one case (No. II.) the pia mater of the brain was slightly injected.

My case resembled all of the cases reported, except that the pulse was very rapid, while it was very slow in all the cases in which the pulse-rate was recorded. The toxic effect of the poison seems to be exerted on the brain, and for the following reasons it seems to me to act directly on it, and is not a reflex act produced by irritation of the alimentary track. The gastric and intestinal symptoms and lesions are too slight, and the coma is more profound and longer than it is when produced by an irritant poison.

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521 TWELFTH STREET, N. W.,
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TABLET TRITURATES AND COMPRESSED PILLS.

BY E. P. HURD, M.D., NEWBURYPORT, MASS.

THE manufacture and use of pharmaceutical preparations known as tablet triturates, compressed tablets, or compressed pills seems to be on the increase. One of the arguments in favor of the tablet triturate is its cheapness. The pharmacist has an interest in selling these tablets at a very low rate, and by this means obtaining the trade of physicians rather than druggists. The representative of the manufacturing house, at stated periods, visits all the physicians in a given locality with his samples, and for a few dollars, paid on receipt of the goods, each medical man is furnished with quite an outfit of the drugs which he most uses in his practice, in a form very handy for administration. It is needless to say that the low price paid per thousand for the compressed tablets gives the latter, in the estimation of the frugal practitioner, a great advantage over the neat little pills, gelatin-coated or sugar-coated, and it might almost seem as if the day of pill-making were over. Then, again, the cheapness of the medicinal tablets favors another tendency of the age,—*i.e.*, physicians in many parts of the country are coming more and more into the habit of carrying their medicines with them; this is a primitive custom, but one which has, doubtless, given the homœopathic practitioner of former days (if not of the present day) some slight advantage in the struggle for existence. There is a satisfaction, physicians say (who now rely on the triturates and seldom write prescriptions), in being able to dispense at the bedside, and in a safe and convenient form, the medicines indicated. Moreover, by adding a small increment to the bill, the cost of the medicine, with a fair percentage of profit, is recovered. Again, the tablets are supposed to represent a definite dose of the ingredient, and it is a convenience to the physician to know the exact amount of the drug which he is dispensing.

Whether the increasing popularity of the tablet is destined largely to work against the interest of the retail apothecary, whose shelves are already heavily weighted with the new preparations,—some salable and some very unsalable,—which he must "carry" in order to keep up with the times, it is impossible as yet to say; nor do we yet know whether drugs will maintain their active therapeutic properties as well in the compressed tablet as in the well-coated pill-form. It is quite probable that the active principle of many drugs will deteriorate more or less in the tablet form, but this is a matter for the future to determine.

There is a real objection to the employment of compressed tablets which is applicable to the employment of all medicines in

the solid state,—*i.e.*, absorption is not so certain nor so speedy when the drug is given in the solid as when it is given in the liquid state. Doubtless, as a rule, the tablet triturate is more readily dissolved in the stomach than the pill; at the same time (to quote the words of Gubler), "When we have to do with maladies of a grave character, and when we are obliged to depend absolutely on the medicines, it is desirable to resort, not only to soluble substances, but to substances in solution, under the form of syrups or of potions, and even in the state of dilute solutions, in order to be sure of giving the dose requisite to produce the effects desired."*

Certainly some medicines, like quinine and salicylic acid, are much more likely to have the desired therapeutic action if given in solution. It would, in fact, not be good practice in a case of severe intermittent, to administer in pill or tablet form sufficient quinine to control the ague, on account of the danger of provoking severe gastric irritation.

Opium will often disappoint if given in the solid form, and who has not heard of Landry's patient to whom opium pills were given for a painful abdominal affection? At the autopsy great quantities of undissolved pills were found in the intestines.

INSENSIBLE PERSPIRATION.

At the Ninth Congress of Internal Medicine at Vienna (*British Medical Journal*, May 3, 1890) Dr. Unna, of Hamburg, read a paper on the insensible perspiration of the skin. He said physiologists were not yet agreed as to the results of varnishing the body. As a number of impenetrable coverings for the skin had recently been introduced into dermato-therapeutics, Dr. Unna, in conjunction with Dr. Mielck, carried out a number of experiments to discover the effect of this mode of treatment. The experiments proved that fats invariably diminished the evaporation of water from the skin, and lanolin did so to a higher degree than the fats of glycerin, though lanolin could be freely mixed with water. The same was true of glycerin, which, though it could be mixed with water in any proportion, nevertheless formed a great obstacle to water vapor. The evaporation density of vaseline was of a similar intensity to that of lanolin. Gelatin, however, was the real contrast to the fats; a thin layer of gelatin augmented the water evaporation of the skin. This fact furnished the explanation of a clinical observation long known,—namely, that a person covered with gelatin over all his body constantly felt more or less cold. A similar contrast to that between fat and gelatin was also observed between caoutchouc and gutta-percha on the one hand and collodion on the other; whereas the two former diminished evaporation (caoutchouc did so much more than gutta-percha), thin layers of collodion increased it. Gelatin and collodion, which increased evaporation, had also another common character,—namely, that they spontaneously contracted when drying up. As they were, however, prevented from contracting when drying up over the skin, their normal structure had to be changed; they thus became porous bodies. Dr. Unna believed that the positive increase of perspiration, owing to covering the skin with gelatin and collodion respectively, was due to the change of the natural evaporating layers of the skin by the application of porous substances. The strong check which the water-evaporation of the skin sustained by the application of fats also partly explained the enormous oscillations of the numbers which were found in the determination of the natural water-evaporation of the living skin by physiologists. The fact that the horny layer of the skin was covered with layers of fat of varying size had not been taken into account in these cases, as was also proved by the researches of Erismann. In conclusion, Dr. Unna directed attention to the practical bearings of these physiological experiments on medicine. The application of fat to the body preserved warmth, and drove great quantities of water towards the kidneys. On the contrary, the artificial unfatting of the skin took away part of the warmth, owing to increased evaporation, and the kidneys were thus freed of part of the water. He recommended the "unfatting" of the skin, with subsequent application of gelatin to the body to diminish fever, and at the same time relieve the kidney of part of its water in inflammations of that organ.

Professor Senator said he had long been in the habit of applying gelatin to the body. In patients suffering from fever, he had covered the body with gelatin to diminish the temperature. The temperature fell considerably, but the experiments were not continued owing to the want of appropriate preparations.

* "Cours de Thérapeutique," 1880.

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Leading Articles.

THE DIGESTIBILITY OF BOILED MILK.

SINCE the presence of various infective micro-organisms have been recognized in milk, the custom of boiling this aliment before consuming it is becoming more and more general. In fact, as sterilization is not assured by the simple raising to the boiling-point in many cases, various contrivances are employed through whose use the temperature of the milk may be raised considerably above 212° F. Nevertheless, this latter procedure can never be as extensively employed as simple boiling, for it necessitates a complicated manipulation and in many cases costly apparatus. Perhaps in the future, when the importance of sterilizing milk becomes thoroughly recognized, companies may be formed having for their object the distribution and sale of sterilized milk. Before, however, such an industry should be encouraged, and even in the present state of affairs when boiled milk is so frequently employed as a food, it becomes very desirable to recognize if the milk, after being raised to the boiling temperature, will possess all the nutritive properties of fresh milk; in other words, whether it is equally digestible and assimilable. Various experiments have been made with this object in view. Thus, Hübner, in a number of experiments on sick children, found that under the use of boiled milk more than one-half the number of children increased in weight, while the other half remained stationary or lost weight. This result is apparently satisfactory, when it is remembered that these studies were made on sick children; but they, nevertheless, lose greatly in value when it is recognized that, in the first place, there was no comparison made with the fresh milk, and it is evident that such studies should be made on healthy individuals and not on children suffering from various diseases. For this reason experiments made on animals are more reliable, among the best of which are those made recently by Raudnitz, analyzed by Bourquelot in *La Médecine Moderne*, March 27, 1890.

Raudnitz's experiments were made upon a young dog, who was subjected for a number of days to various modes of feeding,—1, a diet of fresh unboiled milk; 2, a diet of mixed food, containing, as nearly as possible, the same quantities of nitrogen, fat, and carbohydrates as the milk in the preceding diet, this diet being designated as a mixed diet or the diet of repose; and 3, a diet of milk which had been subjected for one hour to a temperature considerably above the boiling-point in a Papin's digester, the pressure being one-half atmospheric above the ordinary pressure. The animal was carefully weighed before each change of diet, while the nitrogen, the fat, and the calcium salts were estimated each day both in the elements ingested and in the excreta,—that is, in the urine and fæces. The interposition of a mixed diet, or what he terms the diet of repose, permitted an accurate separation of the fæces coming from each separate diet, since the excreta from the milk diet were fluid, and more or less clear, while those from the mixed diet were blackish and almost solid. It is thus possible to estimate with considerable accuracy whether the animal increased or diminished in weight as a consequence of any one of the three diets; and, in the second place, to determine which diet was most advantageous in the assimilation of nitrogen, fat, or lime. The following tables contain the most important of the author's results:

First Series of Researches.

	Duration of the diet.	Nitrogen.		Fat.		Lime.	
		Ingested daily.	Percentage assimilated.	Ingested daily.	Percentage excreted.	Ingested daily.	Percentage in the fæces.
Fresh milk.....	3 days.	5.20 gr.	9.44	35.1 gr.	5.59	1.73 gr.	37.82
Diet of repose.....	2 days.	.....	.....	.....	.....	.....	.....
Boiled milk.....	2 days.	5.20 gr.	5.73	35.1 gr.	3.72	1.73 gr.	62.68

Second Series of Researches.

	Duration of diet.	Nitrogen.		Fat.		Lime.		Phosphoric acid.
		Amount ingested.	Percentage assimilated.	Amount ingested.	Percentage excreted.	Amount ingested.	Percentage assimilated.	Amount excreted in the urine.
Fresh milk.....	3 days.	5.14 gr.	4.9	36.3 gr.	4.36	1.7 gr.	41.3	.97 gr.
Diet of repose.....	3 days.	.....	.....	.....	.....	.....	.....	.....
Boiled milk.....	4 days.	5.14 gr.	3.4	36.3 gr.	6.25	1.7 gr.	33.1	1.01 gr.
Diet of repose.....	3 days.	.....	.....	.....	.....	.....	.....	.....
Boiled milk and HCl.	4 days.	5.14 gr.	4.6	36.3 gr.	5.63	1.7 gr.	30.3	.97 gr.
Diet of repose.	3 days.	.....	.....	.....	.....	.....	.....	.....
Fresh milk.....	3 days.	4.9 gr.	4.5	41.4 gr.	4.00	1.8 gr.	15.9	.87 gr.

It will be noticed that in one of the experiments of the second series Raudnitz made use of boiled milk acidulated with hydrochloric acid, the object of this being resolution of the phosphate of lime, which is to a certain extent precipitated in the boiling, the author thus hoping to increase the nutritive qualities of the milk, especially as concerns the phosphates. The amounts of ingesta are stated in their weight daily, while the figures which represent the matters assimilated or excreted are in percentages of the ingesta. It appears from these tables that the assimilation of nitrogen and of lime is more complete when the animal is fed on the fresh milk than when the boiled milk is given; while, as regards fats and phosphoric acid, assimilation seems to be identical in the two diets. From an examination of Raudnitz's methods, however, it can scarcely be concluded that his results are absolutely reliable for any element, with the exception of the nitrogen, and the difference between the results of the different series as regards nitrogen are so insignificant as to be almost unworthy of notice. Thus, for example, his method of estimating fats from the fæcal matter after drying to 80° C. by means of ether is particularly defective, since the method may give results which are capable of at least ten per cent. variation, according to the degree and duration of desiccation. On the other hand, as regards the salts, elements which are of special importance in the alimentation of children, and the elements which various authors have considered more assimilable in fresh than in boiled milk, the interposition of the mixed diet containing an indeterminate quantity of lime, which in most cases is less than that contained in milk, would predispose the animal while on the milk diet to the absorption of lime, so that the conclusion of the author as to the absorption of lime is indecisive. Finally, as is seen in the tables, the addition of hydrochloric acid to the boiled milk seems to have had no appreciable influence on the results. Nevertheless, these results possess a certain amount of interest, for they show that, if there is any difference between the nutritive value of fresh and boiled milk, this difference is so slight that it may practically be overlooked in comparison with the other advantages reached through the sterilization of the milk.

On the other hand, VASILIEFF, in an inaugural thesis of 1889 in St. Petersburg (*Journal de Médecine*, May 4, 1890), details experiments made on six healthy individuals, varying from 18 to 23 years of age, restricting them for three days to a diet of fresh milk and then for the three days following to boiled milk; and he draws the following conclusions from the results as regards the assimilation of the proteids in the fats of boiled milk as compared to that of unboiled milk. The author claims that his experiments have proved that the assimilation of the nitrogenous principles of the boiled milk is considerably less than of fresh milk,

although the difference is less marked than in the case of the fats. Nevertheless, the fæces contain considerably more fatty acids after the administration of boiled milk than after the use of fresh milk. He therefore concludes that the nutritive value of boiled milk is much inferior to that of fresh milk. He explains these differences by the hypothesis, first advanced by Schmidt, that by boiling a part of the caseine in cow's milk is transformed into hamialbuminose.

A NEW FUNCTION OF THE PANCREAS.

IN a series of notes recently published in several numbers of the *Lyon Médical*, an abstract of which has already been laid before the readers of the GAZETTE, Dr. Lépine showed that the ablation of the pancreas in the dog was followed by the production of diabetes, a phenomenon which the author and Drs. Von Mering and Minkowski attribute to the suppression of a function of the pancreas, hitherto unknown, which apparently consists in the removal from the blood, through the destruction of the pancreas, of a ferment differing from the pancreatic digestive ferments, whose function is to destroy glucose, this ferment being continually secreted by the pancreas and as continuously absorbed. At a recent meeting of the Academie des Sciences, Dr. Lépine read a paper detailing a number of experiments which seem to show that this ferment, in great part at least, is absorbed by the lymphatics (*La Tribune Médicale*, April 24, 1890).

Dr. Lépine stated that, after allowing a dog to fast for thirty-six hours, he removed the pancreas under chloroform narcosis, and then allowed the animal to die of starvation. The urine evacuated in the evening after the operation contained sugar; the next morning at eight o'clock the urine contained two and a half ounces of sugar to each quart. It was found that the sugar then gradually increased together with the urea, the amount of sugar in the urine being, as a rule, about double the amount of the latter. Dr. Lépine then injected into the jugular vein, on the first day after the operation, about 4½ drachms of opalescent lymph collected, by a fistula of the thoracic duct, from a dog which had been previously fed with a quart of milk. This injection apparently caused no ill effects, the temperature remaining unchanged. About one to two hours later there was noticed a slight diminution in the sugar and in the urea, the diminution gradually increasing until the urea was more than four times as abundant as the sugar. On the following day—that is, the second day after the removal of the pancreas—the glycosuria again became intense. Dr. Lépine also found that the addition of fresh chyle received from the thoracic duct of a dog in full digestion, and added to an aqueous solution of glucose, maintained at 38° C., caused considerable reduction in the amount of sugar present. This seems to prove that the chyle contains a principle which destroys glucose, and, since he has obtained in addition in a dog rendered diabetic a great diminution of the glycosuria by injecting malt diastase into the veins, it seems established that this principle is a ferment. It further appears that this ferment comes from the pancreas, for he finds that the injection of chyle taken from an animal in whom the pancreas had been removed, does not produce diminution of glycosuria. On the other hand, however, the liquid obtained from maceration of the pancreas did not serve to produce satisfactory results, as it was impossible to obtain an extract free from microbes, and, as a consequence, septicæmia was always produced. It does not, however, seem absolutely certain that all of this sugar ferment is absorbed by the lymphatics. Part is perhaps absorbed by the portal vein; at any rate the author's observations seem to indicate in the clearest manner that the pancreas possesses other functions than that of secreting digestive ferments, and that it supplies to the economy a ferment whose function is the normal destruction of glucose. The value of these observations, apart from their intrinsic physiological importance, is considerable: for they are also capable of practical application, since they point to the possibility, already perhaps indicated by Lépine, that in cases of diabetes the cause may be located in the pancreas, and that one explanation of the production of diabetes may be found in the reduction in the amount of sugar-destroying ferments secreted by the pancreas.

This view is still further strengthened by the fact that numerous authors, in autopsies on diabetic patients, have noticed more or less evident change in the pancreas. Thus Frerichs has stated that this organ is atrophied in at least one-half the cases of diabetes, and Seegen, in fifteen out of thirty cases, has found the pancreas atrophied, the seat of fatty degeneration, or choked with calculi. Professor Senator also has noted

that in diabetics the pancreas is frequently the seat of atrophy or degeneration. The experimental facts noted by Dr. Lépine, therefore, further emphasize the advisability of a minute study of the pancreas in cases of diabetes; and in the *Lyon Médicale* for May 11, 1890, Dr. Lépine reports the case of a man, 40 years of age, who passed daily nearly ten ounces of sugar in his urine, and who died from pneumonia, in whom, while the pancreas appeared on first examination to be almost normal, the microscopic examination of the glandular tissue showed that the acini were surrounded by a sclerotic zone, characterized by the development of fibrous tissue, and therefore pointing to an old lesion. Such a pathological change as this would evidently obliterate the lymphatic spaces of the gland; and, since Dr. Lépine has advanced very strong arguments in favor of the absorption by the lymphatics of the ferments of the pancreas, the application of this observation to the pathological history of diabetes is especially interesting.

Still another point, which is, perhaps, capable of practical application, is the observation made at the suggestion of Dr. Lèpine by Dr. Lannois, who found that subcutaneous injections of pilocarpine in a young woman suffering from diabetes, when, however, no signs of disease of the pancreas were present, resulted in a marked diminution of the glycosuria. As it is well known that pilocarpine is an active stimulant of the salivary glands, the idea, of course, suggests itself that perhaps the pilocarpine may stimulate in a similar manner the pancreatic cells, and so lead to an increase of the sugar-destroying ferment.

We regard Dr. Lèpine's observations of great importance, both from a physiological and a pathological point of view, and as opening an entirely new aspect of the obscure subject of diabetes mellitus.

TABLET TRITURATES AND THE DISPENSING OF DRUGS BY PHYSICIANS.

WE publish on another page of this journal an article by Dr. E. P. Hurd, in which attention is called to the custom, stated to be a growing one, of the dispensing by physicians of remedies in the form of tablet triturates, compressed tablets, or compressed pills. This is a custom in whose favor but little can be said, while on several grounds we believe that in the majority of cases it is inexcusable. Of course, in the case of the country doctor, whose practice is located, it may be, miles from the nearest drug-store, the dispensing of prescriptions by the physician becomes necessary, but we cannot but believe it is a necessary evil. In the first place, a point which is brought out by Dr. Hurd's article is in itself the strongest condemnation of this method, and that is the interest which the physician has in obtaining his medicines at the lowest price. It is needless to say that, in the competition between the different manufacturing houses, it is evident that the cheapest preparations are the poorest, and we thus have the element of unreliability introduced. A commercial element is further brought into the question, which certainly should be foreign to a physician's practice. Where the cost of the prescription is borne by the patient, the physician will order the remedy which is most exactly indicated in the case, without considering, in the majority of cases, the cost; but where he himself has a temptation to look for a profit in the sale of his medicines, he will be tempted to prescribe the remedy which will yield him the largest profit. There is thus the temptation to substitution of drugs, even more to be condemned than in the case of pharmacists who substitute one remedy for another prescribed by a physician. The stock of remedies which a physician can carry with him must of necessity be a limited one, and, although he might see a case in which a given remedy was called for, he might not have this remedy in stock, and the temptation would be strong to substitute a drug which would do *nearly as well*, instead of giving the order to be filled by a druggist.

Then, again, the position of dispenser is a profession which requires a definite course of study, and it is absurd to suppose that the doctor, in the limited amount of special education in this direction which he has received in his professional studies, is capable of judging of the quality and character of the drugs dispensed, even were not the form of tablet triturates or compressed pills of itself entirely prohibitory of any recognition of character of the remedy even by experts.

We can hardly believe that this custom is one which is destined to become at all universal.

OREXIN AS A STOMACHIC.

THE scepticism which we expressed in our last issue as to the value of orexin as a stimulant to the appetite is unfortunately strengthened by further experience. In the

Deutsche Medicinische Wochenschrift for May 15, 1890, Dr. Martins publishes an account of thirty-five different cases of the most varied nature, some normal individuals, others illustrating almost every conceivable morbid process, in which orexin was given with the view of testing its power as a stomachic.

The mode of administration was identical with that recommended by Penzoldt, the only difference being in the results. Of twenty-nine of the above cases, in five there was, to be sure, some improvement in appetite noted, but this was in all cases slight, and in no case indubitably attributable to the remedy. It, therefore, seems that orexin is masquerading under false colors, and the sooner the name "orexin" is divorced from hydrochlorate of dihydrophenylchinazolin the better.

STANDARDIZATION IN THE NEW PHARMACOPŒIA.

THE action of the Convention for the Revision of the United States Pharmacopœia, in session last month in Washington, in reference to the assaying of crude drugs and galenical preparations, is to be regarded as a step in the right direction. From the extreme personal and even violent character of the discussion of this subject, in the different pharmaceutical journals, which preceded the meeting, we feared that the true merit of the question would be obscured by a similar tone of argument before the Convention; but we feel that both the medical and pharmaceutical professions are to be congratulated on the result attained. By a very decided majority the Convention voted that "It is recommended that assay processes be appended to the descriptions of the more energetic or otherwise important drugs containing active principles, provided the therapeutic value of the drug depends upon the amount of these principles, and provided, also, that these principles can be assayed and identified with reasonable accuracy and without requiring complicated processes. The committee may attach a note stating the usual percentage of these active principles in good commercial samples of the drug, and, if it be found feasible, it may attach a requirement that the drug shall not be used unless it conforms to the stated limits.

"The committee may attach assay processes to such galenical preparations as fluid extracts, tinctures, etc., but it shall omit requirements of a definite strength or percentage of active principles, except in the case of drugs for which an upper or lower limit, or both, of active principles is prescribed."

The question is thus practically left in the hands of the Committee of Revision, and from the *personnel* of that committee and the marked evidence of the spirit of the meeting, we may be confident that, as far as is now possible, the next Pharmacopœia will be the first to standardize galenical preparations of the more important active drugs, which now admit of accurate methods of assay. Thus the most ardent supporter of standardization cannot but be satisfied to see the principle of standardization recognized, with the assurance, further, that its extension only depends upon an increase in our knowledge of methods of assay. We thus see ground for the belief that the day is not far distant when the physician in ordering preparations of a toxic or narcotic drug may be sure of uniformity in activity.

Reports on Therapeutic Progress.

THE PAST AND PRESENT TREATMENT OF RHEUMATISM.

At a recent meeting of the Royal Medical and Chirurgical Society a paper was read by DR. M. CHARTERIS on "Rheumatism: its Treatment Past and Present," with special reference to recent experimental research on salicylic acids and their salts (*Lancet*, February 15, 1890). The author commenced by giving a general *résumé* of the treatment of rheumatism previous to the introduction of salicin and salicylic acid. First came the alkaline treatment, next the blistering of joints, then the expectant method, then followed a period of chaos, and, finally, salicin and salicylic acid were introduced. Details of an experimental research as to the action of salicin, salicylic acids, and their salts of sodium were given. It was found that salicin in doses of 30 grains, salicylic acid (natural) in doses of 10 grains, and salicylate of sodium (natural) in doses of 32 grains had no deleterious action on rabbits weighing two pounds and a half; but the artificial salicylic acid in doses of 10 grains, and artificial salicylate of sodium in doses of 18 grains in ordinary use caused the death of rabbits of the same weight. On July 4, 1889, an impurity was discovered in artificial acids which was very soluble, and had an appearance like coarse flour. It had not yet been identified,

but was probably derived from creosotic acid. 1 grain of this impurity proved fatal to a rabbit weighing two pounds. As the result of a further research, it was found that the impurity could be removed by the following process: Salicylate of calcium was first prepared, then decomposed by hydrochloric acid, setting free salicylic acid, which was subsequently purified by recrystallization. The appearance of the purified acid was in every respect similar to that of the natural variety. The physiological action of this purified acid in 15-grain doses on rabbits was detailed. There was no paralysis, not even depression, after the last injection, and the rabbit was able to run easily. He contrasted this physiological action with that of the best samples of artificial acid, which, in similar doses, proved fatal to one rabbit, and in two others caused marked prostration and paralysis, but not death. The paper concluded with practical deductions drawn from these investigations.

Dr. Maclagan said that many who had used sodium salicylate had seen deleterious effects from it, and had hence abandoned it in favor of salicin. He had tried many other artificial compounds of salicylic acid besides the salicylate of sodium, but he had come to the conclusion that salicin gave the best results. If the results which Dr. Charteris had obtained were confirmed by other observers, a mode of obviating these obnoxious disturbances of the heart and nervous system had been discovered. Salicylic acid might be prepared from a natural compound, but he questioned whether the purified artificial acid could be obtained at the price of ordinary salicin. Senator, of Berlin, had stated that salicin was broken up in the system into salicylic acid and something else, but he was not aware that any proof of this had been brought forward. His own belief was that all the salicyl compounds were antirheumatic; that salicin was the best of these, and gave rise to no unpleasant effects, and that next to this pure salicylic acid was the most valuable, but that its price was a bar to its general adoption. The benefit of these drugs was not due simply to their antifebrile powers, but they also distinctly combated the poison of rheumatism. He ordered 30 grains of salicin every hour for six hours, and found that in from twelve to twenty-four hours the pain and fever had disappeared. It usually took an ounce of salicin to effect a cure.

Sir D. Duckworth said that the matter was one which concerned both chemists and bedside physicians. Professor Latham, of Cambridge, had insisted on the necessity of using salicylates prepared from a pure source. He himself had largely used the commercial pure salt in hospital practice, but he could scarcely recall an untoward result. He was referring especially to such results as cardiac depression, for tinnitus and other minor discomforts could scarcely be reckoned as drawbacks compared with the obvious advantages of the drug. He thought that the price of the purer drug when used boldly would be considerable. He was in the habit of prescribing 20 grains of salicylate of sodium every six hours, the second dose being given three hours after the first.

Dr. Luff referred to the method of preparation of artificial salicylic acid. Carbolic acid was saturated with caustic soda and heated, and while in this state carbonic acid gas was passed over it. If the temperature were too much raised, an isomeric variety of salicylic acid might be produced which might be harmful. He asked if Dr. Charteris intended to make an organic analysis of the impurity he had found. The impurity had been separated by fractional precipitation and fractional crystallization; this was the usual process adopted, and he inquired if any other method of purification had been used.

Dr. Shaw said he believed that the artificial salicylate of sodium had a much greater efficacy than the natural salt. He had been watching for some time the effects of treatment at Guy's Hospital under salicylate of sodium and salicin respectively. He had seen delirium, hemorrhage, and tinnitus aurium occur with both. He admitted that salicylate of sodium was more liable to produce toxic effects, but claimed that it possessed greater efficacy in combating the rheumatic poison.

Dr. A. Garrod said that since the introduction of these drugs the rare results of rheumatism had been attributed to the toxic effects of them. From an analysis of cases treated years ago by the alkaline and expectant methods, he found that transient albuminuria and urticaria occurred just as frequently as they did at present. The salicylate of sodium no doubt had a slight deleterious action, and the removal of the impurity was a step in advance. He had prescribed salicin frequently to out-patients, but had seen no bad results; perhaps because large doses had not been used.

Dr. Haig preferred salicylate of sodium to

other preparations, as it was more agreeable to take; in his experience it did not possess much toxic power, though he had given it in large doses for periods as long as a year. He noticed that some specimens of the drug produced giddiness and gave to the breath a smell of carbolic acid.

SURGEON-MAJOR MYERS had given salicin in large doses; his experience was that the drug depressed and gave rise to a prolonged convalescence. In the medical school at which he was educated three physicians treated rheumatism in three different ways, and each claimed great success: one used opium, another strychnine, while a third relied on alkalies and rest. When the salicylates were introduced, their chief recommendation was said to be their antipyretic power, but that point now seemed to be abandoned.

DR. TAYLOR said that more would be known on the subject when pure acids had been prepared and used practically. He prescribed 20 grains of the salicylate every two hours, and had frequently seen inconveniences, such as delirium, result.

DR. LITTLE ordered 10 grains of salicylate of sodium every hour or two hours without producing discomfort.

DR. MITCHELL BRUCE said that in his experience delirium was uncommon. At Charing Cross Hospital 15 grains were given every four hours, and these doses appeared sufficient, but in a certain number of cases they required increasing by half. In two cases which he had watched, hæmaturia appeared to be a result of the administration of salicylate, and he thought that some of the other symptoms complained of might really be renal in origin. The paper suggested that much was still to be learnt concerning other derivatives, such as antipyrin and antifebrin.

DR. LAUDER BRUNTON said that in considering this question two factors had to be taken into account,—the dose given and the substance used; and the nature of the substance used had undoubtedly a great deal to do with it. Meta- and para-oxybenzoic acids were isomers which possessed very little physiological action. The quality of the carbolic acid used in the preparation of salicylic acid was probably a greater source of danger, for from impure carbolic acid oxytoluic acid and other substances of that order might come. The German patent for the manufacture of salicylic acid had now expired, and it would probably now be made in this country. The Pharmacopœia Committee could then specify a proper method for its manufacture.

DR. CHARTERIS, in reply, said that he had failed to obtain a pure salicylic acid in the market. The dialyzed acid said to be pure proved equally fatal to rabbits. It was not a sufficient description to specify the melting-point; the characters of the crystals should likewise be defined.

HÆMOGLOBIN COMPOUND, OR BULLOCK'S BLOOD IN THERAPEUTICS.

A paper was read before the Philadelphia County Medical Society, Wednesday evening, March 26, by F. E. STEWART, M.D., Ph.G., on the "Use of Bullock's Blood as a Therapeutic Agent," in which the author called attention to a preparation consisting of fresh defibrinated blood preserved in the fluid condition by extract of malt, whiskey, and glycerin. The author referred to his original introduction of *Langin's Bovinus Exsiccatus*, in 1881, to the work of Dr. Andrew H. Smith, of New York, on the use of defibrinated blood for supplementary rectal alimentation, to the blood powders of Le Bon and of Querder, both of Paris, France, and then went on to describe his new preparation in the following language:

Hæmoglobin Compound.—The objection to all these dried powders of blood, however, is (1) their insolubility, (2) their odor and taste.

If blood is dried at a high temperature, an odorless and tasteless powder results; but it is insoluble. If a temperature lower than this is employed, yet sufficient to cook the blood, a peculiar odor and taste develop, not found in fresh blood. If a temperature below the coagulating point of albumen is used, the resulting product is free from disagreeable odor and taste, and quite soluble; but in time the scales or powder become so dry as to resist the action of solvents, and then their solution is attended with difficulty. For these reasons Dr. Stewart has instituted a great many experiments for the purpose of finding some way to preserve this blood unchanged and in its fluid condition. These experiments have finally proved successful.

The author described the preparation of the compound and its physical appearances. The therapeutic properties were then referred to, quoting from the literature of various investigators who have written on this subject. The sum of the reports from the authorities quoted were to prove that bullock's blood has

been successfully used in the following classes of cases: Persons who by reason of want of appetite or a languid state of the digestive functions cannot take food; in fever cases to obviate a tendency to death by asthenia, and to forestall a degree of prostration dangerous to life; in the treatment of various infantile diseases, such as diarrhœa, mal-nutrition, etc.; atonic dyspepsia; cases of serious and fatal organic diseases either of the stomach or other organ to support the patient and lessen his sufferings when all hope of cure is gone; in the treatment of diseases of the eye as an adjunct to other means when the system is in a depraved condition; in so-called muscular rheumatism, associated with indigestion; in various neuralgic affections; in surgical cases; in general weakness after fevers; in hemorrhages from any cause; in phthisis; in neurasthenia; and in convalescence. In fact, the author claims that the remedy is indicated in all cases of weakness or debility, no matter what the cause may be.

This summary was founded on the reports of fifty cases treated by the author, and by various other observers in America and Europe. Several of these cases were referred to in detail to illustrate the use of the remedy. One point in this connection is worthy of notice, and that is the smallness of the dose recommended. 15 drops, in water, milk, cream, or flaxseed-tea, to be gradually increased to a tablespoonful, three times a day, were recommended. In this dose it agrees well with the most delicate stomach, and its use, according to the author, is followed by surprisingly favorable results.

In his remarks, the President of the Society, PROFESSOR W. W. KEEN, said that the investigations of Dr. Andrew H. Smith, of New York, were well known to the profession, and that the introduction by Dr. Stewart of this new preparation of the blood ought to be followed by its trial in the hands of the members and subsequent report, so that the true value of the product might be brought out by more extensive investigation.

THE TREATMENT OF DROPSY OF CARDIAC ORIGIN WITH CALOMEL.

A few years ago the diuretic properties of calomel attracted a great deal of attention, but it seems since 1886–87 to have been entirely neglected, perhaps on account of the great number of new remedies which have called for investigation. Its properties as a diuretic, however, are again emphasized in the report of three cases of cardiac lesion by DR. E. G. GARVENE (*Therapeutische Monatshefte*, April, 1890), resulting in severe dropsy, in which the use of calomel produced the most striking relief. In these three cases digitalis, caffeine, and strophanthus had been used, and almost without effect. Calomel was, therefore, substituted in doses usually of 1½ grains every two hours, with an almost immediate increase in the diuresis. In some cases slight diarrhœa was produced, but no symptoms of stomatitis occurred, perhaps through the regular employment of gargles of potassium chlorate and brushing of the gums with tincture of myrrh.

ON THE PRESENT POSITION OF ABDOMINAL SURGERY.

At the meeting of the Medical Society of London, held April 14, 1890, MR. MEREDITH, as arranged, inaugurated a discussion by an address on "The Present Position of Abdominal Surgery" (*British Medical Journal*, April 19, 1890). He observed that one could not do otherwise than ask what had been the causes of the wonderful advances made in abdominal surgery during the last ten years. The present range of abdominal surgery included the treatment of injury or disease of every organ within the abdomen and even the peritoneum itself. So extensive a field for the surgeon contrasted strongly with what obtained ten or twelve years ago, when the knife of the operator was restricted almost exclusively to operations for ovariotomy. It was in 1877 that his own attention had been first directed to abdominal surgery, and at that time operations for ovariotomy were the only ones thought of in this region. It is true that other abdominal and pelvic tumors were sometimes touched, but this was mostly the result of accident, in the sense that it resulted from a mistaken diagnosis. The mortality, even of ovariotomy, was very high. Thus, according to the statistics of Sir Spencer Wells, in 1876–77, of one hundred and fifty operations there were twenty-nine deaths, equal to 19.3 per cent., and of this number no fewer than twenty-three were due to septic peritonitis. The mere prevalence of such a mortality was sufficient of itself to check the progress of abdominal surgery, and its causes were themselves worthy of separate consideration. One of the causes was undoubtedly a defective method of dealing with the pedicle, and an inadequate conception of the absorptive powers

of the peritoneum, both for good and evil. The use of the clamp, again, was undoubtedly a direct factor in the production of this large mortality, and in London, at all events, the intraperitoneal treatment of the pedicle by ligature was practically restricted to cases in which the shortness of the pedicle rendered the use of the clamp inadmissible. The danger of the clamp lay in the opportunity it afforded for septic infection, the risk of subsequent hemorrhage, and the risks incidental to a long and tedious convalescence. These were sufficient reasons for condemning it long before 1878, when the plan was finally abandoned in favor of the intraperitoneal ligature. The next important advance in abdominal surgery was the introduction of Listerian practice into this department, which their President had been largely instrumental in effecting in 1877. He expressed his conviction that the teachings of Lister, by drawing attention to the value of surgical cleanliness, had, directly or indirectly, done more to promote abdominal surgery than any other factor during the last ten years. Drainage and the flushing of the peritoneal cavity had, in fact, revolutionized the practice of abdominal surgery. Drainage was at first attempted by means of glass tubes of unnecessary size and clumsiness, and their use was at first looked upon with little favor. Moreover, the methods adopted to prevent putrefaction of the fluids which oozed away through the tube were most unsatisfactory. The employment of tubes of smaller calibre, and duly protected against septic decomposition, had done much to render drainage safe and efficacious. The plan of flushing the peritoneal cavity, associated with subsequent drainage, had proved of immense value in ovariotomy and other abdominal operations, especially when undertaken for injury to or rupture of the hollow viscera. However explained, the success of this combined plan of treatment could not be denied. The addition of antiseptics to the water used was fraught with the risk of poisoning, and could do no good; even the precaution of using water previously boiled was not essential to success, provided a fluid was used which was not itself contaminated with septic material. So long as no decomposing material was left in which the micro-organisms could develop, the peritoneum—thanks to its wonderful powers of absorption—was capable of getting rid of the small amount of fluid that remained behind, and any stray organisms were thus deprived of the moisture requisite to their rapid development, and were, moreover, themselves probably absorbed and excreted. These exceptional effects of flushing the peritoneum and drainage illustrated two other points,—namely, the inadvisability of administering opium and the advisability of giving saline purgatives in the presence of certain symptoms pointing to incipient peritonitis. With regard to the administration of opium, he said it was a mistake, owing to the restraining influence exerted by it on absorption and excretion. Its use after abdominal operations ought to be strictly limited, and, as a rule, patients did much better without it. The *rationale* of the administration of saline purgatives in the early stage of peritonitis could only be explained by their promoting absorption and excretion. Of course, if there were an obstruction or an impaction, purgatives could only do harm, and in such cases he preferred belladonna, which usually overcame the difficulty. The gradual improvement in the results after ovariotomy was evidenced by the records at the Samaritan Hospital for three separate periods during the last twelve years. In 1878–79 there were one hundred and seventy operations, of which twenty-four proved fatal, equal to 14.1 per cent.; in 1886–87 there were one hundred and forty, of which ten died, equal to a mortality of 7.1 per cent.; and in 1888–89, of one hundred and thirty patients operated upon, only six died, equal to a rate of 4.3 per cent. The figures 4.3 compared with 14.1 might be taken as a measure of the improvement effected within the last ten years. With regard to the treatment of uterine tumors, ten years ago the results obtained in this branch of abdominal surgery were highly unsatisfactory. The treatment of the uterine stump, whether by intraperitoneal or extraperitoneal pressure, was invariably followed by terrible mortality, due either to hemorrhage or to septic poisoning. Of seventeen cases operated upon by Sir Spencer Wells prior to 1880, eight proved fatal, being at the rate of forty-seven per cent. In consequence, interference with uterine tumors was undertaken only when the growths themselves were thought likely to prove fatal. Then came the introduction of Koeberlé's *serre-nœud*, which was first used by Keith in 1873, but was not appreciated in London until long after. With respect to hysterectomy as performed at five hospitals during the last four years, there had been eighty-two cases with fifteen deaths, equal to a rate of 18.2 per cent. These figures indicated a reduction of sixty per cent. on the former rate. His own results in connection with this operation were six deaths out of thirty cases; out of these, four occurred

in the first ten, and the remaining two among the last twenty, thus giving a markedly diminished mortality during the last series. Success in this procedure depended largely upon familiarity with the various details, especially with regard to the treatment of the stump. Extraction and removal of tumors involving the upper portion of the uterine body, even if of large size, was now commonly not a matter of any serious difficulty. In a certain proportion of the cases, however, complications arising from the growths being beneath the broad ligament, leading to displacement of the bladder, etc., necessitated extensive enucleation in order to form a pedicle for the application of the *serre-nœud*. In such cases the removal of the uterine appendages could sometimes be performed; but as often as not this alternative was not practicable, and the more serious operation had to be done. The chief danger was hemorrhage, to be avoided, in the first place, by securing the ovarian vessels on either side of the uterus, by transfixion and ligature of both broad ligaments below the appendages, followed by the use of pressure forceps above that level. The next thing was to free the displaced bladder from its connection with the surface of the tumor. He insisted upon the importance of including in the ligature both ovarian arteries, also of uniting the free borders of the divided capsule. The ultimate success of these operations depended upon the proper adjustment and management of the stump and upon the precautions taken to protect the peritoneum. The tumor having been taken away, the remaining portion of the stump had to be dealt with, and the question of the removal of the uterine appendages had to be considered. The treatment of pedunculated tumors of the uterus was a very successful procedure in properly selected cases, and the removal of the appendages for the arrest of hemorrhage due to fibroid tumors was an operation the efficacy of which was undoubted. Unfortunately, however, complete removal of the ovaries and tubes was not always possible, hence the occasional necessity for resorting to the more radical measures. The chief point was to avoid puncture of the frequently distended vessels of the pampiniform plexus and the complete removal of all ovarian tissue. It was not sufficient to strip the broad ligament clear of the base of the ovary, for some ovarian substance might remain on the distal side of the ligature and lead to recurrence of the hemorrhage, and render recourse to hysterectomy advisable. Accepting the theory of the influence of the ovaries on menstruation, he said the continuance of the hemorrhage must be due to some ovarian tissue having been left behind. He alluded to Mr. Tait's views with respect to the influence of the tubes and also to the possibility of there being a special nerve branch which might be destroyed during the operation. He expressed a hope that further light might be shed on this point in the course of the debate. The mortality of these operations in the hands of skilled operators was very small, only two per cent., according to Mr. Tait's recent work on the subject. The removal of the uterine appendages for disease raised questions of very serious importance, particularly because the operation in a large proportion of the cases was directed to the relief of affections not in themselves menacing life. If the operation itself were absolutely devoid of danger, the matter might perhaps be left to the conscience of the operator, but as, even in the most skilled hands, there was a certain percentage of unavoidable mortality, the matter assumed a different aspect. The main question in respect of this subject was the value of the operation, and this had to be considered (1) with reference to the nature of the cases operated upon, and (2) as to the ultimate result of the treatment on the welfare of the patients. An analysis of one hundred and forty-seven cases of removal of the appendages published by Mr. Tait showed that there were forty-five cases of pyosalpinx, nine of hydrosalpinx, forty-three of chronic ovaritis, one of exanthematous ovaritis, and two of ovarian abscess. This was fifty-four per cent. of cases of tubal disease, and forty-six of chronic inflammatory conditions of the ovaries. He observed that it was worthy of note that in these cases the suffering was often quite out of proportion to the lesions, but the converse was equally true. He dismissed the difficulties of the differential diagnosis in these cases, and insisted upon the inadvisability of active intrauterine treatment. He admitted that there was great difficulty in defining exactly the cases which called for surgical interference, the propriety of which depended on social and other considerations, as well as upon the nature and extent of the disease. He urged that no radical operation should be advised or undertaken in these cases until a course of palliative treatment had been given a fair trial. He asked for further information on the subject of the ultimate consequences of removal of the appendages, as to which little was at present definitely known. He then passed on to discuss the improvements effected in the diagnosis and treatment of the various forms of ectopic

gestation, and the views held by authorities on the pathology of this terrible abnormity. He pointed out, in reference to the substitution of Porro's operation and the modified Cæsarean section for craniotomy in obstructed labor, that the choice of the method would depend upon the predilection of the operator, the results obtained by both in skilled hands being satisfactory when performed at full time. He said the surgical treatment of tubercular peritonitis was now generally recognized, and was of utility in checking the development of what appeared, for a time at any rate, to be a local disease. The results of surgical interference in suppurative peritonitis had, so far, not been satisfactory, probably because the peritoneal mischief was usually secondary to suppurative nephritis, which could not be relieved by mere drainage. The treatment of pelvic abscess by abdominal incision was a vast improvement upon the pelvic operation, especially as it was often possible to get at the sac without opening the peritoneum. In no department of abdominal surgery had greater progress been effected than in dealing with calculous and suppurative diseases of the liver. He passed in review the various operations directed to the relief of these conditions and the conditions which should preside over the selection of particular methods of procedure. He quoted the contributions by Mr. Godlee, on the "Surgical Treatment of Hepatic Suppurations" (*Journal*, vol. i., 1890, pp. 61, 120, and 172), as an excellent summary of what had been done in this branch. The advance effected during the last ten years in renal surgery was not less marked, and had been largely brought about by their President. He insisted upon the necessity for devising means of arriving at an early differential diagnosis between tumor and calculus, and urged the advantages attending early surgical measures, not only in these, but in many other affections of this organ. He alluded to the diagnostic importance of the abdominal incision in these cases in preference to the lumbar incision, in which the surgeon had to be guided by what he could feel, in cases where he had need of the assistance of all the senses. He concluded by a few remarks on the surgery of the spleen and pancreas, the results of which still left much to be desired. As, however, the spleen might be removed without any necessary detrimental effect on the economy at large, he hoped that further progress would shortly be made in the diagnosis and treatment of diseases of this organ. He added, in thanking the Fellows and members for their attention, that he hoped his paper would pave the way to a debate worthy alike of the ancient Society to which they belonged and of the world-wide reputation of British surgery.

The PRESIDENT suggested that attention should be especially directed to the following points: As to the operative defects of hysterectomy; facts bearing on the recurrence of menstruation after ovariotomy; the ultimate history of cases of oöphorectomy; the early diagnosis of ectopic gestation; the relative merits of Porro's operation, and the new methods of performing Cæsarean section. Then as to the complete closure of the gall-bladder and the relative value of cholecystotomy and cholecystectomy, and as to the removal of gall-stones from the ducts by incision, etc. As to the removal of the kidney in hydronephrosis; the differential diagnosis of renal calculus and tumors; the exact localization, as to the side, of renal lesions; as to the ultimate results of mere draining of the kidney in suppurative disease; also as to the ultimate history of cases which had recovered from splenectomy; and, lastly, as to the symptoms of early disease of the pancreas. He explained that the subject was so vast that, unless some definite plan were laid down, it would be difficult to deal with it satisfactorily.

DR. GRIFFITHS (Swansea) said there were ten important points to bear in mind in abdominal operation; in fact, ten surgical commandments bearing on the treatment of the wound,—1, the arrest of hemorrhage; 2, the avoidance of mechanical irritation; 3, the guarding against infection or contagion; 4, the proper apposition of the edges of the wound by aseptic sutures; 5, to provide for necessary drainage; 6, to apply gentle pressure to prevent congestion and exudation; 7, to give the most perfect physiological rest; 8, to secure the best possible position of the parts to promote comfort and healing; 9, to provide for hygienic surroundings; and 10, to attend to the patient's general health. If these were attended to and the condition of the patient was up to the average, the operation could not fail to prove satisfactory. He declared his firm belief in the practices inculcated by Lister. His own experience was limited to fifty-six cases of operation for ovarian tumor, including three oöphorectomies for hemorrhage due to fibroid tumor of the uterus. He was very stringent in the use of antiseptics, but never used a drainage-tube in ordinary ovariotomy, considering it worse than useless. He admitted, however, that there were cases in which it was indicated, and he regretted not

having used it in one case of his own. There were six deaths among the fifty-six cases, in three of which the operation was undertaken for malignant disease; the fourth was an "impossible" case for operation, in the fifth the bladder was ruptured, and in the sixth the patient died from fatty degeneration of the heart. He had not had a single death from septicæmia.

Mr. Mayo Robson (Leeds) said he only proposed to speak as to the result of operations and on the subject generally, without going into the question of individual diseases. What they should aim at was to establish general principles for guidance. He expressed his gratitude to the leaders in abdominal surgery, whose teachings and experience had enabled younger men like himself to start from their high platform. At the Leeds meeting of the British Medical Association he had brought forward two hundred cases of abdominal operations, and he had since added considerably to the number. Of these, sixty-one were operations for ovariotomy, and of these two died, but these were apparently very unfavorable cases; in one of them intestinal obstruction supervened at the end of a week, and if this occurred now he would reopen the abdomen and endeavor to ascertain the cause. The other death was from exhaustion consequent on removal of a suppurating multilocular cyst, adherent to all the surrounding parts, and the profuse drainage had determined fatal exhaustion. The fact that he saw names of equal weight on both sides in reference to the employment of antiseptics led him to think that there must be some common ground, and that ground he thought was the value of extreme surgical cleanliness. While he might dispense with the spray if operating in the country, in a pure atmosphere, he hesitated to do without it in a general hospital in which the surroundings were not of the purest. He certainly felt safer when he used the spray, not directed straight at the abdomen, but pointed into the air over the region of operation. With reference to the contention that abdominal operations ought not to be performed in a general hospital, he denied that there was any valid reason for the suggestion. He maintained that it was possible to obtain results in a general hospital equal to those at a special hospital, or even in private practice. He did not argue from mere belief, but he had statistics which would compare favorably with those at special hospitals and elsewhere. Of sixty-one cases of ovariotomy, two died, and in the condition described by Mr. Meredith as an extremely serious operation,—namely, the removal of diseased appendages,—he had operated thirty-four times without a death. He had also five cases of abdominal section for tubercular peritonitis in which he had opened and drained without a death, and ten cases of pelvic abscess treated by abdominal section also without a death. Further, he had twelve cholecystotomies without a death, and two cholecystectomies, operated upon under the impression that there were gall-stones. One turned out to be malignant disease of the head of the pancreas, and the patient died from hemorrhage, which set in three days after the operation. Within three weeks he had a similar case, but on that occasion he tied every vessel instead of trusting to pressure forceps, and no such mishap occurred, though the patient ultimately succumbed to malignant disease. He denied that general surgeons were more exposed to have their hands contaminated with septic material than the surgeons at special hospitals. He urged that gynæcologists particularly were very liable to come into contact with infective cases in the course of their examinations; the argument, therefore, would not hold. The real question was as to whether general surgeons could perform these operations successfully. With regard to the removal of the appendages for myoma of the uterus, out of a large number of these cases he had only seen the hemorrhage persist in one. In this case, although after the operation the uterus had diminished in size, and had once more become a pelvic organ, it had since begun to grow again, and now reached above the umbilicus, so that he had advised the patient to undergo hysterectomy. With regard to the ultimate result of removal of the appendages for disease, he said these cases must be divided into two classes,—Battey's operation, in which the ovaries were removed to obtain a physiological result; and Tait's operation for the removal of diseased appendages. His results with the latter operation had been eminently satisfactory, but, as Mr. Tait had pointed out, they must not look for an immediate result. They must wait for a year or eighteen months, for the final result would not be noticed until the menopause had been thoroughly established. Battey's operation, in his hands, had yielded results eminently unsatisfactory in every way. The nervous symptoms had simply shifted to some other part of the body, and he would not again be inclined to remove ovaries unless he had distinct evidence of their being diseased. With regard to tubercular peritonitis, his experience was that if there were fluid

when the peritoneal cavity was opened, then draining it and washing it out did good. If, on the other hand, the intestines were simply matted together by tubercular matter, the procedure hardly afforded any relief. In regard to pelvic abscess, he believed that unless the abscess absolutely pointed in the vagina, opening the abdomen was by far the best course. He had never had reason to regret having adopted this method in his ten cases.

Mr. John W. Taylor (Birmingham) said he would briefly direct attention to several points in his own experience in reply to the question of the President, bearing on the diagnosis of extrauterine pregnancy in its early stages; he had succeeded in doing so on two occasions. There was, indeed, not much difficulty; in both the presence of a retro-uterine tumor, possessing all the characters of a distended Fallopian tube, associated with the early signs of pregnancy, obviously pointed to the diagnosis. On the broad subject of the evening's debate, he said that many of the dangers associated with their work as abdominal surgeons, and not a few of the fatal results sometimes met with, were largely preventable; they had, therefore, to consider the means of perfecting their work. He insisted upon the necessity for early surgical intervention when this was called for, and he said there was room for a good deal of improvement in this respect. He mentioned a case of papillomatous cyst of the ovary which had been known to exist for two or three years, but for which nothing had been done until rupture took place, and it was sent to him as urgent. It would, in such a case, have been much better for the surgeon and the patient to have operated long before and without waiting for rupture. They were all agreed as to the importance of cleanliness, but there were several problems to be solved in hospital management before they could hope to attain the maximum of success. He pointed out that abdominal cases appeared to be peculiarly sensitive to influences which would not have any import in the ordinary run of surgical cases, and this was a point which ought to be borne in mind. With reference to the influence of kidney-disease as affecting the mortality after surgical operations, he said that he had operated when the urine had been markedly albuminous without any bad result, but he remembered two cases in which kidney-disease seemed to have precipitated the sequel. On carefully reviewing his own work, all his most anxious cases appeared to be affected in one way or another by the factors which he had mentioned.

Mr. Frederick Treves said he should confine his attention to two points. The first concerned the technical details of the operation for hysterectomy. Before mentioning what appeared to be the better plan of operating, he said he wished to point out that there was really nothing special in abdominal surgery,—that is, there was nothing peculiar about it. The common principles that influenced general surgery held good in abdominal surgery, and if at any time a Herbert Spencer of surgery came to write the first principles of surgery, it would then be seen that they were to all intents and purposes identical. The opening of the peritoneum in peritonitis and allowing the fluid to escape, washing out the cavity afterwards, seemed, it was true, to open up a new field for surgical procedure, but it in no way really differed from the ordinary treatment of abscess elsewhere. The whole history of ovariotomy was only the history of the treatment of simple tumors. Just as with tumors in years gone by, the pedicle had at one time been cauterized and then clamped, but the time had come when the thing was done cleanly and efficiently, and that was where ovariotomy was at present. The present position of abdominal surgery merely amounted to this, that a certain remarkable reformation of the methods of treating wounds had rendered it possible to apply the general principles of surgery to the abdomen,—only this and nothing more than this. He said he mentioned this because it rendered intelligible what he was about to say with reference to hysterectomy. He said it must be allowed that there were still some cases in which the extirpation of the uterus with the tubes and ovaries was a justifiable operation. It was a vexed question, but he thought it might be taken for granted at present. In his practical experience he had endeavored to treat these cases as he would a large external tumor growing from some part of the uterus. He asked them to imagine such a tumor growing from the back of the buttock. It would be treated on a certain definite plan, and that when applied to the abdomen had given excellent results. The blood-vessels going to the great mass were not numerous and were well known, and were, moreover, easy to find and easy to ligature. He took it that the ovarian arteries ought always to be tied, though the ovarian branch of the vaginal artery might be more difficult to find, and only be come across late in the operation. The ovarian arteries having been ligatured, the broad ligament was divided and the neck of the uterus was cut across, hemorrhage having been pro-

vided against by the application of an elastic ligature, and at last there swept from one side of the pelvis to the other a huge gash in the peritoneum, and in that gap certain vessels required to be ligatured. That gash in the peritoneum was closed in such wise that when healed there was a seam running right across the base of the pelvis. He compared his procedure with the use of the *serre-nœud*, which, without exaggeration, was, he said, a barbarous method, and really belonged to the Middle Ages. The method of dealing with any tumor by begging the question of hemorrhage and ligaturing the whole until it dropped off by gangrene, was unsurgical and absurd. The position of the *serre-nœud* in respect of hysterectomy was that of the clamp in ovariotomy. His own results on the plan laid down had been admirable. It was admitted that there was no class of cases in which complications were more likely to arise than in these cases of tumor of the uterus, but he ventured to say that if there were any kind of tumor inside or outside of the body, around which a *serre-nœud* had been passed, that pedicle could most certainly have been treated by simple surgical measures. Even if fifty ligatures were required, that plan of dealing with the pedicle was better than by means of this uncouth piece of metal, which reminded him of the whip-cord formerly applied to the tongue by torsion. With reference to the treatment of that form of extrauterine fœtation, in which the fœtus had died, one might imagine that the sac had been opened, the fœtus had been removed, and nothing remained but the placenta and sac. He thought that, on common surgical grounds, not only should the placenta be removed, but also every trace of the sac. Some persons would say that this was difficult, if not impossible, but he pointed out that the sac must necessarily be of recent formation, and therefore flimsy, and the adhesions could not be of more than moderate strength. It ought, therefore, to be reasonably easy to carry out this plan of practice. He had had three cases within eighteen months, in all of which he had removed every trace of the placenta and sac, cleaned out the pelvis, and closed up the abdominal wound, without drainage, and the patients had recovered in about the usual time required for convalescence from an ovariotomy. As to the surgery of the pancreas, he believed that no case of tumor of the pancreas had ever been intentionally operated upon in this country, for the disease had not been diagnosticated. If they had paid a little more attention to the remarkable paper by Senn on the subject there would not be so much difficulty in arriving at a diagnosis. He recalled the case, in a certain hospital, of a man with an enormous belly, which was said to have reached that size in two months. It was popularly supposed to be a sarcoma. They obtained the man's consent to an exploration, and they found that it was an enormous cyst of the pancreas, which was opened and its contents evacuated, and it healed up without complication or trouble of any kind. He hoped that when Mr. Meredith made a further communication to the Society he would take up the question of the manner in which different cysts in the belly were to be dealt with, seeing that there was an enormous difference in the behavior of such cysts after evacuation.

Mr. Skene Keith said that in the removal of pyosalpinx one expected recovery to follow in a moderately short time. The few cases he had seen had all recovered very rapidly. The other cases of salpingitis, ovaritis, hydrosalpinx with adhesions and varicosity of the veins of the pelvis, which had so much to do with the sensation of dragging, the pain, and the general discomfort, got better almost invariably, and ultimately the patients became as well again as they had ever been. It was a mistake that was often made not to warn patients and their friends that they would be a very long time getting better. Patients put up with the idea of a little waiting if told beforehand, but otherwise after six months or so they began to get restive. He mentioned the case of a patient upon whom he had operated some months ago and who was not as well now as she was before the operation, so far as strength was concerned. She, however, was free from the pain and the vomiting, and in a couple of years that woman would probably be as well as ever she had been in her life. He insisted upon the fact that these women with diseased ovaries belonged to a "fragile" class, and had probably never been able to do as much as other women, and this must be borne in mind in formulating expectations. One reason why they took so long to get better was that they had been a long time ill, and had for years been gradually going down-hill. Naturally, therefore, it took them some time to pick up again. He agreed with the last speaker in what he had said in reference to hysterectomy, but there were cases in which the clamp could not be dispensed with. They could not always spare the time to get the stump thoroughly under the ligature. The method of compression, so far as they had got, was simple

enough by means of a double screw clamp. Another point was as to the ease with which the vessels could be tied. He reminded Mr. Treves that though in some cases it might be possible to pick up and name the vessels, it was not always so, and they often had to deal with a large number of vessels all as large as the radial artery, which they were glad enough to tie without giving them a name. He thought the clamp had been unnecessarily abused. The clamp and antiseptics came in together, and if they made sure that no putrid matter could trickle down to the peritoneum—a contingency which was usually amply provided against—he thought they might get as good results in ovariotomy, or in the removal of the appendages, with as without it. At the same time he did not advise it except in certain cases. He wished to draw attention to the good Listerism had done in bringing about habits of surgical cleanliness. He mentioned the story of a gentleman who, before assisting at an ovariotomy, was asked to wash his hands. He rather indignantly said it was unnecessary, he had washed them in the morning. When, however, he was told that the water contained ten or twenty per cent. of this or that antiseptic, he did not hesitate or feel hurt at being asked to perform his ablutions.

THE VALUE OF CODEINE.

Dr. G. Kobler has made a number of experiments in the clinic of Professor von Schrötter, in the Vienna Hospital, as to the value of codeine in controlling coughing in cases of tuberculosis of the lungs and larynx (*Zeitschrift für Therapie*, April 1, 1890). The desirability of obtaining a remedy which in such cases may be substituted for morphine is very evident, from the fact that many patients are incapable of taking morphine. There are many cases where the continued employment of morphine in ordinary dose is quite impossible, and recourse must then be made to such remedies as extract of hyoscyamus, extract of cannabis indica, and the like, which too often prove themselves to be without value.

As the result of his studies, Dr. Kobler states that codeine far surpasses all the latter remedies, both in the reliability and safety of its action; while it is likewise, as a rule, free from unpleasant after-effects, though occasional complications attend its use. Codeine is an opium alkaloid, generally regarded as possessing but little narcotic power, and best known as a more or less valuable remedy in diabetes mellitus.

Codeine occurs in brilliant white crystals, with a bitter taste, which are only with difficulty soluble in water (in 80 parts of water at 60° F.). In Dr. Kobler's experiments the remedy was given systematically to more than seventy patients of different ages, in doses varying from ½ to ¾ of a grain, the amounts given in twenty-four hours varying from two to three grains. Smaller amounts failed to produce any apparent effect, and, as a rule, ½ grain was usually inefficacious, and ¾ of a grain represented the quantity usually given. The author adds that in no instance, even in the constant administration of this dose for six weeks, were any symptoms of poisoning observed. At first the remedy was given in pill form, later in the form of a powder, and frequently in a mixture, the bitter taste of the latter, however, being an undesirable feature of this mode of administration. In one case the codeine was used as a rectal suppository. In this case the patient, who, as a consequence of dysentery suffered from painful stricture of the rectum, and, at the same time, violent bronchitis and laryngitis, obtained relief from the local pain in the bowels, and the cough was likewise combated, by the use of suppositories containing ½ grain of the alkaloid. In order to be certain as to whether these effects were actually due to the codeine, its administration, as well as that of any other narcotic, was interrupted for three or four days, when the symptoms again returned to their original intensity, and were again overcome by the renewed use of codeine. As is the case with most remedies which act on the nervous system, it was also proved, in the case of codeine, that single large doses were much more efficacious and energetic than the same amount given in divided portions. Thus, for example, the author found that when ½ grain was given in the morning and the evening, the results were quite satisfactory, while two grains might be given in a day, in doses divided in equal amounts, given every two hours, without producing any apparent effect. This result was most marked in the case of a patient with advanced phthisis, in whom ½ grain of codeine given in the morning and the evening produced marked narcotic effect, with slight dizziness, while no symptoms of this sort were produced by the previous administration of two grains given in divided doses in one day, nor was this latter mode of administration capable of producing anything but the slightest narcotic action. Symptoms of fulness of the head, dizziness, and slight

nausea occurred in a few other instances after the administration of codeine, especially in cases of advanced phthisis; in fact, in some cases were so marked as to prohibit a sufficient increase in the dose to procure the desired narcotic effect. This lack of tolerance of codeine in prostrated individuals must, therefore, be borne in mind, and in such cases it is extremely desirable to commence with small doses. With these exceptions no symptoms of poisoning in the entire series of experiments were ever met with.

In view of the studies of Von Schroeder on animals, especial attention was directed to the pupil and to the action of codeine on the intestinal canal. Schroeder observed in dogs, after the use of small doses, which were only capable of producing slight narcosis, that the pupils were markedly contracted, while large doses were rapidly followed by the occurrence of tetanus, and that then there was wide dilatation of the pupils. The author states that in his patients, in many of whom two or three grains of codeine were given daily for weeks at a time, that the pupils, when the narcotic effect was sufficient to arrest the cough, were always about the normal degree of dilatation, while in no instance was there ever the slightest indication of anything at all approaching a tetanic condition. Schroeder further observed, in his experiments on dogs, as was also the case in rabbits, that codeine was very apt to produce diarrhœa, in which he confirmed the observation previously made by Falck. The doses, however, given in these experiments upon animals were relatively large, so that the extreme of narcotic effect was passed, and then in many cases tetanic action was produced. The author admits that in his series, in a few instances, the use of codeine was followed by liquid stools; but, from the extreme smallness of the dose employed, in comparison to that which is required in the series of experiments on animals to produce diarrhœa, as well as the small degree of narcotism produced in his cases, he feels warranted in concluding that there is no marked relationship between the administration of codeine and the production of diarrhœa. The importance of a correct determination of the action of codeine in this connection is very evident, for it is readily conceivable that a case may combine the qualifications not only for arresting the cough, but also for controlling the diarrhœa; such, for example, as would occur in intestinal tuberculosis complicated by phthisis of the lungs. Here it is evident that if codeine actually increases diarrhœa its use would be contraindicated. In the present state of our knowledge we would undoubtedly prefer in such cases the use of morphine to codeine.

On the other hand, it is quite evident that, as there is some force in the observations which point to the laxative action of codeine, where marked chronic constipation complicates a cough, such, for example, as might readily occur in bronchitis or laryngitis, it is then evident that codeine would be preferable to morphine. The author refers to still another advantage which is offered by codeine and absent in morphine in bronchial catarrh, and that is that codeine seems to facilitate expectoration, and the author states that he has observed in a large number of cases, following both acute and chronic bronchitis, that the administration of codeine seems to act as a mild expectorant not only in diminishing the violence of the cough, but liquefying and facilitating the removal of secretion. This action is less marked in simple cases of chronic laryngitis. In such cases codeine fails to produce relief much more frequently than morphine, although Rauchfuss seems to have obtained different results; since he recommends codeine as the safest and most satisfactory remedy and the one most readily controlled in relieving coughing in pseudo-croup in children. In tuberculosis of the larynx codeine will still more frequently fail, and will in but few cases replace morphine; since the power of the latter in controlling pain is far beyond that possessed by codeine, and in phthisis of the larynx pain and difficulty in swallowing are two symptoms which call for the most active treatment. On the other hand, codeine seldom affects the appetite, only in rare cases producing slight nausea, never producing vomiting; all of these facts are strongly in favor of the use of codeine in preference to morphine.

In many cases the idiosyncrasy against the use of morphine is so marked as to almost prohibit its employment. As an instance of this, the author refers to the case of a nurse who, in the early stages of phthisis, was absolutely unable to take opium or morphine in any form, as its administration, even in minute doses, produced vomiting; nor was extract of hyoscyamus or extract of cannabis indica capable of relieving the violent coughing; meconarceine was of some value, but its great expensiveness prohibited its constant use. Resort was then made to the use of codeine in pill form, ½ grain being given

four times daily, and, as a result, the cough was promptly relieved, while after a few days it was found that the dose might be reduced without losing its effectiveness. In a series of cases of advanced phthisis, codeine failed after several days employment, even although at first it appeared to possess a better action than morphine. The fact that in some cases at first codeine appears to act more energetically than morphine is perhaps to be explained by the supposition that the patients have acquired a certain tolerance to the use of morphine; but after they become accustomed to codeine it more rapidly loses in effectiveness than morphine, so that in many cases the amount of codeine which must be given to prove effective must be rapidly increased. It must not be forgotten, however, that in cases where it apparently loses its power, the effect may be due not only to the accustoming of the system to codeine, but to the advance in the morbid processes in the lungs by which the irritation may be greatly increased. In such cases the morphine will undoubtedly prove much more active than the codeine, which possesses less absolute narcotic power. Nevertheless, the author believes that codeine possesses, in such cases, the greatest value, and its main importance is to be found in its use as a substitute for morphine, not as one which can in all cases absolutely replace it; but, especially in cases which have acquired tolerance of morphine, it may be used in its place with advantage, in some cases permanently, in other cases only temporarily, but even its temporary use in such cases will be found to give relief, and when it commences to lose its power it will nearly always be found that the susceptibility to morphine has been once more regained. So that, in cases where from the very outset the use of morphine is impossible from intolerance on the part of the patient, codeine will be of the greatest value, for it never produces vomiting, nausea, and the allied line of symptoms which so frequently render the use of morphine impossible. So also codeine does not produce loss of appetite, nor does it produce constipation. It reduces violence of coughing, and it renders expectoration easier.

THE RATIONAL TREATMENT OF SCIATICA.

At the meeting of the New York Neurological Society, held April 1, 1890, Dr. G. M. Hammond read a paper on this subject (*New York Medical Journal*, April 3, 1890). The author considered all cases to be pathologically a more or less mild or severe inflammation of the nerve-sheath or interstitial tissue. He agreed with Anstie that rheumatism, gout, and syphilis were not nearly so commonly associated with sciatica as was generally believed. His own experience with the disorder has shown that the vast majority of persons with sciatica had never suffered from these diseases, and that of hundreds of persons with rheumatism, gout, and syphilis, a very infinitesimal proportion had ever had sciatica. It was very probable that rheumatism and gout lowered the tone of the system to such an extent as to render the patient more liable to an attack of sciatica than he otherwise would be. But, whatever might be the cause of the disorder, it should in all cases be treated as a neuritis. Pathologically, we had to deal with inflammation of the sheath of the nerve and perhaps of the nerve itself, and with a sero-fibrinous exudation, which was usually between the sheath and the nerve, but was sometimes in the substance of the nerve itself. Clinically, there was pain, which might be slight or agonizing, continuous or only present on motion, and, in old cases, there was a certain amount of atrophy of some of the muscles.

For the relief of pain, the remedies used should vary with the extent of the suffering. In the severest cases, where the suffering was intense, it was absolutely necessary to use morphine. When such was the case, it should be given in doses amply sufficient to relieve all pain, and should be injected hypodermically and not given by the mouth; the fluid should be injected as near the nerve as possible, as there was some reason to believe that morphine had a tendency to reduce the inflammation in a nerve when brought in contact with it. In milder cases, phenacetin, in a single dose of 15 grains, which could be repeated in an hour if necessary, would be found to fulfil all requirements. Antipyrin and acetanilide could be used in place of phenacetin if desired.

To relieve the neuritis itself, he depended almost entirely upon rest, the application of cold, and the use of electricity. In regard to the value of rest in the treatment of sciatica there could be no doubt. Every time the leg was moved the functions of the sciatic nerve were called into play. It was well known that the use of nerves and muscles induced a temporary congestion of the parts used, which would only have a tendency to

aggravate a condition of already existing inflammation. By rest he meant absolute rest attained by keeping the patient in bed and applying the old-fashioned long splint, reaching from the axilla to the sole of the foot. It should be so attached as to leave the thigh and sole uncovered for the use of electricity and cold. Every fourth day the splint should be removed for a short time in order to manipulate the joints and muscles to a slight degree. Cold could best be applied to the sciatic region by ice-bags. The refrigerating sprays he had found less efficacious. As to electricity, it was very useful, but only the continuous current should be employed, and in the following manner: The negative electrode should be about nine by four inches in size, and should be strapped to the sole of the foot by elastic bands. The positive electrode should be about five or six inches square, and should be applied over the gluteal region, over the point where the sciatic nerve emerged from the pelvis. If there were any very tender spots along the course of the nerve, this electrode could be changed occasionally so as to cover them. The strength of the current should not be such as to cause much pain, but should fall just short of doing so. No rule as to the current strength to be employed could be laid down, as the point of toleration was different in different individuals. The continuous current should be applied twice daily, if possible,—certainly once a day,—for about five minutes at each *séance*. Most of the text-books recommended that at the end of each application of the continuous current a number of interruptions should be made in order to stimulate the muscles. Nothing of the sort should be done. It was opposed to the scientific treatment of the disease. It irritated the nerve and counteracted, in part, if not altogether, the benefit derived from the continuous current.

Dr. Burnett had treated a case of acute sciatica by this method with the long split, under the direction of Dr. Hammond. The leg was kept in the splint for eight days, when recovery was found to be perfect.

Dr. Dana thought that the author of the paper had done good service in calling attention to the fact that rheumatism, gout, and syphilis were not causative elements in sciatica, but merely diatheses, at times coincident with the disease of the nerve. Almost all cases were of an inflammatory nature; there was a minority of cases, however, in which there was no actual neuritis, but a pure neuralgia, often reflex, and due to pelvic irritation, and especially found in young women. He believed the treatment outlined to be rational. Rest was fundamental; but he had had quite as much success with strong counterirritation in addition to the rest as with the application of cold.

Dr. Starr mentioned the fact that acupuncture had been employed as a remedy in sciatica, a contributor to the *Practitioner* having recently called attention to the method, maintaining that fluid accumulating in the sheath of the nerve might thus be evacuated. He had himself had no experience with it.

The President differed with the author of the paper and with Dr. Dana in their statement that rheumatism, gout, and syphilis had no particular causative relation to sciatica. There was not, perhaps, so much relation between sciatica and gout and syphilis as between sciatica and rheumatism, but his experience led him to be convinced of such relation. He had also met with a number of cases of sciatica due to diabetes; and, if diabetes could do so, why could not the rheumatic poison produce a similar sciatic neuritis?

In treatment he had found the galvanic current very unsatisfactory, but the application of cold useful. He had also employed ichthyol with considerable benefit.

THE ANATOMICAL ALTERATIONS IN CHRONIC SPHACELIN-POISONING.

In his work on the general pathology of the circulation and nutrition, R. von Recklinghausen, in the chapter on "Gangrene," produced through hyaline thrombosis of the arteries and capillaries, makes the following statement: "This hyaline thrombosis of the arterial branches may be produced, as was shown by Professor Kobert, in the cock's-comb by the administration of ergot preparations. In the points of the cock's-comb, which thus become dark-blue and dried on the surface, and whose epithelial coat becomes almost entirely separated, the axial artery may be found to contain a bright red hyaline clot, containing vacuoles, which, on certain points, entirely fills the lumen of the vessels, but on others forms a hard deposit on the arterial walls, while enclosing a narrow canal. This hyaline deposit is only found in the arterial branches, never in the capillaries or veins, and points to the fact that in ergot-poisoning there occurs marked contraction of the external parts of the cock's-comb,

causing gangrene by the interruption of the blood-current there produced."

On the other hand, Kysinski, in similar experiments, was unable to find either thrombus of the vessels or a degeneration of the tissues, and the contradiction between these two observations led Dr. A. Grünfeld to undertake, under the direction of Professor Kobert, a new series of studies on this subject in the Pharmacological Institute of Dorpat, and his results are published in the *Arbeiten des Pharmakologischen Institutes zu Dorpat*, vol. iv., 1890, his experiments being made on eight cocks poisoned with sphacelin extract and sphacelinic acid. The author was able to confirm the observation of Kobert that the most frequent appearances of chronic poisoning consisted in the gradual discoloration of the comb, the cock's-comb becoming first dark-blue and then black. Occasionally these changes disappear, but if the administration of the poison was persisted in, the comb became quite black and dry. A similar state of affairs occurred also on the tip of the tongue, which, in some cases, became so completely desiccated as to break off. Microscopic examination revealed that these changes were of a gangrenous nature, and depended upon obstruction of the circulation, and therefore the author confirms the statement of Kobert. The author found perfectly distinct hyaline degeneration in the arteries, the walls of the vessels were thickened, while the hyaline deposit occurred between the intima and adventitia, the lumen of the vessels being filled with a thrombus, which, in some cases, was closely adherent to the intima, in other cases was separated from it. The thrombus consisted in part of well-preserved blood cells, in part of cells undergoing various degrees of hyaline degeneration.

BORAX IN EPILEPSY.

At the meeting of the Cardiff Medical Society, held April 3, 1890, Dr. Stewart, assistant medical officer at the Glamorgan County Asylum, related cases illustrating the value of borax in epilepsy. 1. A girl admitted, aged 13, had had epileptic seizures dating from birth, occurring in numbers varying from two to twelve per day, and chiefly by night. She had been under treatment repeatedly, but without benefit. Without treatment the fits during the first week were twenty-six in number; under borax they were reduced to twenty-four in the second and eight in the third week. After an interval free from fits of sixteen days, four occurred on two successive nights; then, after another interval of nine days, a single fit took place, and since that there has been no recurrence of fits,—that is, a clear interval of over a month. 2. This patient began to suffer from nocturnal epilepsy at 18, and came under treatment five years afterwards. The case was complicated by serious cardiac disease and stenosis of the mitral orifice. Without treatment the average monthly number of fits were one hundred and one, and under borax this was reduced to twenty in the first month, seven in the second, one in the third, five in the fourth, none in the fifth, and one in the sixth. 3. This patient had whooping-cough at 7, followed by left hemiplegia, imbecility, and epilepsy. The average number of fits a week, when no special treatment was employed, was 3.5, and bromide failed to effect any reduction; after two and a half years' treatment the weekly average had risen to sixteen. Under borax the weekly average during the first month was reduced to 15.5, and during the second month to 11.5. The diminution took place chiefly in the nocturnal seizures. In 4, 5, and 7, in which the fits occurred both by day and by night, bromide exercised a decided influence upon the diurnal seizures, leaving the nocturnal practically unaltered, and in these benefit was experienced from the combined use of bromide and borax, three doses of the former during the day and one single dose of the latter at bedtime. 6. This patient, epileptic and imbecile from birth, came under treatment at 35. The fits were of the nocturnal type, were uninfluenced by bromide, and were slightly diminished by borax. Dr. Stewart concluded that borax exercised a peculiar influence over nocturnal seizures, and that it was, in cases where the fits were entirely of that kind, that the greatest good might be expected; that bromide, on the other hand, exerted a more powerful influence over diurnal seizures, and that, in cases characterized by both day and night fits, a combination of these two remedies would be productive of most benefit.—*British Medical Journal*, April 19, 1890.

THE TREATMENT OF FLATULENT DYSPEPSIA.

In *Les Nouveaux Remèdes*, April 8, 1890, Dr. Huchard publishes a number of formulæ, which are claimed to be of value in the treatment of dyspepsia, especially with a

view of preventing the development of flatulence. Among the remedies which the author has found most satisfactory, chloroform is the best. On account of its irritant action it should not be given in a state of purity or in capsules, as is so frequently done. The best mixture is claimed to be its administration in saturated chloroform-water.

Saturated chloroform-water, 150 parts;
Distilled water, 120 parts;
Mint-water, 30 parts.

Of this mixture a tablespoonful may be taken either immediately before or during a meal.

The same dose may also be taken of the following formula:

Saturated chloroform-water, 140 parts;
Orange-flower water, 150 parts;
Tincture star anise (*Illicium anisatum*), 10 parts.

In the following preparation the chloroform is associated with gastric stimulants:

Tincture of gentian,
Tincture of anise,
Tincture of nux vomica, āā ʒi;
Chloroform-water, 20 to 40 drops.

After filtration, 10 to 20 drops of the above may be taken in a little water a quarter of an hour before eating.

When it is desired to employ the so called absorbing powders the following formulæ may be prescribed:

Powdered charcoal, ʒii;
Sodium bicarbonate, ʒi½;
Calcined magnesia, ʒi;
Powdered colombo, ʒss.

Make 40 powders. One powder may be taken half an hour or an hour before, or, if an antiseptic action is desired, at the time of, eating:

Beta-naphthol,
Salicylate of bismuth,
Magnesia, āā gr. xlv.

Make 30 powders, which may be administered as above.

THE DISCUSSION ON EMPYEMA AT THE NINTH CONGRESS OF INTERNAL MEDICINE.

At the Ninth Congress of Internal Medicine, held in Vienna, April 15 to 18, empyema was made the subject of papers by Immermann, of Basle, referee, and Shede, of Hamburg, co-referee; Ziemssen, Ewald, Leyden, Billroth, and others, participated in the discussion.

Immermann gives three principal indications in the treatment of empyema,—1, to evacuate the pus already formed; 2, to prevent the reproduction of a new purulent collection; 3, to re-establish, as directly and as completely as possible, the normal conditions of the respiratory apparatus.

The first of these indications generally demands a surgical operation of some kind. Spontaneous resorption, indeed, sometimes takes place, and is frequent enough in cases of metapneumonic empyema, when the only micro-organisms concerned are pneumococci; but where there are other pyogenic microbes present (streptococci staphylococci, tubercle bacilli) resorption is not to be thought of, on account of the resistant vitality of these latter. In these cases internal medications are quite insufficient. The pus must then be evacuated, but this is not all; the second indication must be, as far as possible, fulfilled, to prevent the reproduction of a purulent collection. The only operations to be thought of are consequently those that permit regular and complete evacuation of all traces of pus, and keep the pleural cavity aseptic.

The third indication is difficult of realization. In the tuberculous, the lesion is irreparable; the same may be said of pyopneumothorax with perforation, and of old cases of empyema where adhesions have formed. It may be said, as a general proposition, that empyema, whatever be the mode of treatment, will end in cicatrization and restoration *ad integrum* only by the juxtaposition of the two contiguous layers of the pleura, and this juxtaposition can be effected only by the lung being maintained in contact with the costal parietes by firm adhesions. The more recent the empyema, and the younger the patient, the greater the chances of success.

Among the various operations, thoracentesis by trocar and canula and aspiration are not to be much commended, as they cannot remove entirely from the thoracic cavity the agents of suppuration. It is only in empyema due to pneumococci that results more than palliative can be obtained from simple puncture.

Thoracentesis accompanied by irrigation with disinfectant liquids has not furnished very satisfactory results; the thorax cannot, in fact, be entirely cleared of pyogenic agents in this way. A better method is that of *perrigation*. The pleural cavity is opened by two orifices directly opposite; there is an antero-superior, and a postero-inferior puncture, and in each opening a piece of rubber tubing is left for irrigation and drainage. By this means the pleural cavity may be washed out from top to bottom every day. Two of Im-

mermann's patients (children) thus treated, got well in a fortnight. This is Michael's method.

The permanent evacuation of pus as fast as it forms constitutes thus the dominant idea of the various treatments of empyema designated under the name of *radical method*, and which all have in common as their characteristic, the production of a large orifice in some part of the thorax, and the establishment of an external fistula, which is kept open till the patient is well. Most gratifying results have attended this method; in fact, the mortality from empyema is scarcely one-fourth what it was formerly under the old treatments.

König makes an opening on the side of the thorax, just in front of or behind the axillary line, an intercostal space having been chosen. He then performs a sub-periosteal resection of a small portion of the corresponding rib. The pus is then evacuated, the pleural cavity washed out, and a drainage-tube inserted; an antiseptic dressing is then applied. Further antiseptic lavages are made only when there is stagnation of pus. Unfortunately, this latter event is very prone to take place, for the pus which is reproduced does not flow out freely by the opening made for it, and, moreover, the injections made are not always harmless; they may prevent the cavity from closing, and they may drive back the pyogenic microbes into the tissues and give rise to grave complications. To obviate these dangers, Küster, when the empyema is small and encysted, stuffs the cavity with iodoform gauze, and, when the empyema is more extensive, he recommends a double incision, the one in front, the other behind, as low as possible and quite on a level with the diaphragm; he then makes a large costal resection behind, and passes in a drainage-tube which traverses the entire thoracic cavity.

However favorable may have been the results of this method, it does not well fulfil the third indication,—that is, to restore the parts to their normal, anatomical, and physiological conditions. The pleural cavity becomes obliterated, and the patient is made miserable by the retraction and deformity of the chest.

Bülan's method of drainage by permanent aspiration is believed by Immermann to be the most rational. The physical principle of this method is the siphon. A piece of rubber tube filled with an antiseptic liquid is introduced well into the pleural cavity through a canula. The outer end is immersed in a basin of water. The siphon thus formed aspirates the pus that has collected in the thorax, and what forms subsequently; moreover, the expansion of the lung is favored by the negative pressure due to aspiration. Immermann regarded the results obtained from this method as very encouraging. The patient, if the empyema be recent, gets well without deformity or solution of continuity, with almost normal freedom of action of the lung. The method, however, succeeds only when the lung is expansible and yields to aspiration.

The indication for this method is found in cases of recent empyema with pus not too thick, formed by streptococci and staphylococci; notably in bilateral empyema, where it will not do to make a double thoracic fistula. In metapneumonic pleurisies, where the pus is generally thick, and where there are often adhesions, evacuation by this process is sometimes quite difficult. Putrid empyema demands the radical method, for this permits a more rapid clearance of pus, and thus saves the patient from poisoning due to the absorption of putrid matters.

Schede, of Hamburg, co-referee, was not favorable to repeated punctures by trocar or aspirating-needle. He had had brilliant success in one case of purulent pleurisy complicated with pulmonary gangrene by using Bülan's method of siphon drainage. There are, however, serious difficulties attending the carrying out of this method, especially in children.

The treatment by incision and resection is actually the only treatment which, in his judgment, is always useful and never detrimental. The incision should be behind the axillary line, and the resection should include a small portion of the eighth, ninth, or tenth rib, according to circumstances. In severe cases of pyopneumo-thorax he had practised resection of the thoracic parietes, including all the ribs from the second downward, from their cartilaginous insertion to the costal tubercle. The pus cavity was thus transformed into a vast wound, covered, in part, by the skin and the subscapularis muscle; the rest of the wound was covered with iodoform gauze, and was ultimately filled in by granulations. His success in seven out of eight cases thus treated was most gratifying; the eighth patient died from iodoform-poisoning.

In the discussion which followed, Fräntzel stated that in most cases he preferred what was called the radical operation; the siphon

process is, however, preferable to simple incision and to puncture.

Curschmann had been satisfied with the method of Bülan; had had sixty-three excellent results out of seventy-five cases. If the drainage-tube gets stopped up with clots or flakes of fibrine, it should be replaced by another tube of larger calibre. He had tried Küster's method, which creates two fistulæ instead of one, and had found it inferior to that of Bülan.

Leyden had found great difficulties in the way of carrying out Bülan's method. It is often difficult to keep the drainage-tube in place, especially as the pleural cavity contracts. The most difficult empyemata to treat are those that result from rupture of a tuberculous cavity; the easiest are those that follow or accompany pneumonia (metapneumonie). Drainage by siphonage, when it can be carried out, is adapted to all the varieties of empyema, even the putrid.

Ewald believed thoroughly in the radical methods. The physician should make an early diagnosis by means of a hypodermic syringe, and when he finds pus, he should at once make a free large opening and establish drainage. Von Ziemssen for more than ten years had treated all cases of empyema by incision and resection, but Mosler, on the other hand, stated that he had uniformly good results by free incision without costal resection.—*Boston Medical and Surgical Journal*, May 15, 1890.

ACUTE DIFFUSE SUPPURATIVE PERITONITIS—LAPAROTOMY—RECOVERY.

At the meeting of the Clinical Society of London, held April 11, 1890, Mr. Hawkins-Ambler (Kirkburton) and Mr. Lawford Knaggs (Leeds) contributed notes of this case (*British Medical Journal*, April 19, 1890). A boy, aged 9, had symptoms of intestinal obstruction upon which peritonitis supervened. On the second day after the onset of urgent symptoms laparotomy was performed, and the abdomen explored. The intestines on the surface were glued together with yellow lymph. The obstruction was found to be due to a kink in the small intestine, which was adherent at the bottom of Douglas's pouch. As the adhesions were being separated with the finger, an abscess cavity was opened, and a quantity of very fetid pus escaped. A glass drainage-tube was then passed into the right lumbar hollow, and several ounces of pus (not fetid) were ejected with such force as to shoot almost clear of the operating-table. There was no collection in the left lumbar hollow, but a thin layer of pus was present in the folds of the mesentery. A drainage-tube was placed in Douglas's pouch, and the wound closed, the operation being concluded as rapidly as possible. After an anxious twenty-four hours the boy began to rally, the bowels were freely opened, the distention disappeared, and the general progression was all that could be desired; but at the end of a fortnight he grew worse, and a large flat, doughy tumor developed in the neighborhood of the umbilicus, with pyrexia, tympanites, scanty urine, and rapidly-increasing pulse. These symptoms gradually disappeared simultaneously with the discharge of a considerable quantity of sour-smelling pus from the drainage-tube, and from this time progress was uninterrupted. The sinus was quite healed in about five weeks, and the boy was shown at the Leeds and West Riding Medico-Chirurgical Society on March 7, 1890, ten months after the operation, looking the picture of robust health, and with nothing beyond the scar to show that he had had any abdominal trouble. The bowels were acting regularly and well. Attention was drawn to the fact that the abdomen had not been washed out. The operation was performed under exceptional difficulties in the country, and with only dirty tank rain-water available, and without apparatus that could be adapted for washing out. Though this omission might be criticised as bad surgery, yet the result went to prove that washing out was not so absolutely essential as had been imagined. This was just one of those cases in which careful cleansing of the peritoneum had hitherto been regarded as necessary to insure success. The authors believed that had thorough irrigation been attempted the boy would have died; the extra manipulation of the intestines, which were so distended as to make the introduction of a finger a matter of difficulty, would have so added to the shock that the scale would have been turned against the patient.

The President remarked on the advance in abdominal surgery that seemed to be here portended. Formerly, the use of an antiseptic irrigation was considered to be indispensable; lately, mere washing out with boiled water had been held to be sufficient, and now, according to the authors, no washing out at all was required. This might mean a further advance in surgery.

Mr. Barker mentioned the case of a boy whose local condition was probably much the same as in the case just mentioned, but whose general condition was much worse. At the operation, the intestines were found glued down by inflammation surrounding caseating glands. He died of the obstruction and of the operation, which had not relieved the obstruction. In his case there was a fetid abscess, which discharged a quantity of fetid pus when the adhesions were separated. He thought that irrigation of the abdomen should be used in a limited way. In some cases it was not desirable to irrigate, in other cases irrigation was of the greatest value. Under irrigation he had not found the power of the patient depressed; on the contrary, irrigation with hot water had improved the pulse. Where there was a limited peritonitis, he would only wash out the part in which the inflammatory products lay, and not the rest of the abdomen, otherwise the germs of the local disease might be carried all over the peritoneal cavity.

Mr. Parker would like to know the class of cases in which irrigation was likely to do good or harm respectively. In a former discussion the general verdict seemed to be that irrigation was of great value. He had generally found that where warm water was used it revived the pulse; and the same result occurred when the chests of sickly children suffering from empyema were flushed with warm water.

Mr. Howse said that his experience was entirely in favor of irrigation, and that, although great improvement in a case was likely to follow from the relief of tension and letting out of pus, irrigation also had its share in the success that usually followed the operation. He thought it better to irrigate with a fluid that had been rendered aseptic,—water that had been recently boiled, for example. He had in the accident ward at Guy's Hospital a man who had been struck on the left side of the abdomen, and was in a great state of collapse. After forty-eight hours the patient's pulse rose very high, and he seemed likely to die if left alone. The abdomen was opened in the expectation that a rupture of the intestine might be found. There was no rupture, but a collection of clotted blood. Irrigation with water at a temperature of 100° was done, and a large quantity of blood was washed out, and kept running as if a large vein were freely pouring out blood. Eventually the fluid that came away was less colored. In spite of the hemorrhage, the pulse improved under the irrigation; the patient's temperature fell, and he was soon well again. The injury in that case was probably a bruising of a large vascular surface.

Mr. Battle said there were many cases of peritonitis in which it was impossible to say what was the cause of it. One case at St. Thomas's Hospital especially occurred to him, in which he had operated for peritonitis. Three days afterwards the patient's temperature rose, and vomiting ensued; he then performed laparotomy, and found purulent peritonitis without a discoverable cause. The child died next day, and was found, after death, to have swollen mesenteric glands. The child's mother was at the same time suffering from pyæmia in the same hospital; so that the child's case was possibly one of pyæmic peritonitis. In some cases the depression of the pulse following irrigation was such as to show that a great shock had been produced. He mentioned two cases of ruptured spleen as instances; while in a case of extravasation of blood from the pedicle of an ovarian tumor, when the wound was opened, without the use of an anæsthetic, as the blood was washed away, the pulse became quicker and its force diminished.

Mr. Hawkins-Ambler, in reply, stated that he did not think it desirable to do away with irrigation altogether, though he considered that there were cases in which it might be inadvisable to employ it. He generally used it, because it rather enabled one to do without a drainage-tube, or to keep it in for a short time only.

Mr. Knaggs, in reply, mentioned a case of peritoneal effusion which he had washed out, and had reported in another paper, in which he had advocated irrigation. Possibly his views with regard to the necessity for irrigation and the use of antiseptics had somewhat changed. He now attributed importance to the character of the effusion, whether it was serous or purulent. It must be remembered that in the effusion there was a tendency to the accumulation of micro-organisms, which would grow there, and become more and more virulent. If one removed this reservoir of fluid, one placed the patient in the best way to regain health, and the body might then fight successfully against the organisms that must be left behind.

THE TREATMENT OF BRIGHT'S DISEASE.

At the recent Medical Congress held in Vienna a discussion as to the treatment of Bright's disease was opened by Professor

SENATOR, of Berlin, who, under the name of chronic nephritis, stated that he had reference to all diffuse inflammatory alteration of the renal apparatus which was to be recognized by the presence of albumen in the urine, and lasting in general from one to seven months (*La Médecine Moderne*, May 1, 1890).

This division, the most comprehensive possible, proves that the forms of Bright's disease are almost infinite; for in this diffuse inflammation of the kidneys certain lesions may predominate, and this imparts to the nephritis certain special clinical symptoms. Nevertheless, there are two principal forms which should be recognized,—chronic parenchymatous nephritis, or the large white kidney, where the lesions are localized in the epithelium of the urinary tubes; second, interstitial nephritis or the small granular kidney, which is slower in its development than the parenchymatous nephritis, and is characterized by the production of connective tissue and consecutive cicatricial contraction of the kidney. The progress of this form of nephritis is especially insidious, but these two forms of nephritis have determining causes, and the hope naturally suggests itself that in the treatment of these causes one may cure or even prevent the evolution of chronic Bright's disease. Professor Senator, however, believes that this can be rarely possible, and, even where cases of acute nephritis are apparently cured, it should be remembered that in the great majority of cases chronic nephritis will result, so that even when nephritic cases have been apparently cured, their urine should be constantly examined, and measures be taken to prevent the danger of chronic nephritis. Passing in review the presumed causes of chronic nephritis, it is found that cold or chilling of the body, especially when slow and prolonged and when accompanied by dampness, are the most frequent causes. Then come the constitutional diseases, such as syphilis, malaria, alcoholism, tobacconism, lead-poisoning, and diabetes; so also pregnancy and other forms of renal congestion may likewise lead to the production of chronic Bright's disease. In all of these cases it must be acknowledged that we are absolutely powerless, and, while their mode of action is too indeterminate to give us points in prophylaxis, they very rarely assist us in therapeutic indications. Thus, for example, in the case of syphilis, Professor Senator states that he never dares to treat a case of syphilitic nephritis by mercurial preparations, since they have the certain effect of exaggerating the renal symptoms and of aggravating the condition of the patient instead of improving it. As a consequence, the treatment of chronic Bright's disease is confined to the treatment of symptoms, and from this point of view chronic nephritis closely resembles the acute form of renal inflammation. Here, also, as in the latter, antiphlogistics are of no value, and the kidney itself is too deeply situated to give any hope of acting directly upon it, while as regards the reflex action on the kidney it is too feeble to exercise any favorable influence on renal lesions. As a consequence, Professor Senator cautions against the employment of cutaneous irritants as always dangerous. Then, again, we have but little in the way of medicine which acts directly on the diseased kidney. It has been said that astringents cure or give rapid diminution of albuminuria. Semmola has accepted this view, since, according to him, nephritis is due to the presence of large quantities of albumen in the blood; but he is the only one who adopts this view, and we are compelled to acknowledge that there are no remedies which cure Bright's disease. Even ichthyol, which acts so well in chronic inflammations of the skin, has no action on the inflamed kidney. But this therapeutic impotence by no means signifies that chronic Bright's disease is an affection which should be allowed to go on to its inevitable fatal termination. Nephritis may be arrested often during its progress, but this is by no means a cure,—that is, the parts once affected with Bright's disease never become normal. There is in this respect a certain analogy to round ulcer of the stomach. The portion of the mucous membrane, which was the seat of the ulcer, is lost from a functional point of view, but the rest of the mucous membrane may substitute, by a sort of physiological compensation, the part which has been disorganized.

There is thus, as has been stated by Lecorché and Talamon, functional rather than an anatomical cure. In his own experience, Senator claims that he has cured two cases of chronic Bright's disease after two years of treatment, while Johnson has cured two cases after a duration of three years.

The principle which should govern the treatment is that of saving the organ as much as possible, as by restricting its activity one aids greatly in the restoration of its physiological functions.

The renal epithelium is in part disorganized, and consequently the kidney should

only be allowed to remove the amount of waste substances which may be eliminated by that portion of the renal tissue remaining unaffected.- But the obliteration of the uriniferous tubules by inflammation, swelling, and desquamation determines congestion in the glomeruli of the kidney. There is thus local œdema produced, and infiltrations, which, in time, produce vascular and perivascular sclerosis; this complication is, however, not as dangerous as has been generally supposed, for if the epithelium cannot be replaced for the elimination of toxic substances, the glomeruli, nevertheless, may have their function assumed by the skin, since the function of the glomeruli is to remove water, and this is likewise possible through the skin and certain mucous membranes. Even if one could extirpate all the renal glomeruli, the skin, and the bronchial and intestinal mucous membranes would suffice largely to replace them. The prevention of accumulation in the economy of toxic substances, difficult to eliminate, is therefore the first part in the treatment of chronic parenchymatous nephritis, and this is reached by suitable regulations of diet. Little albumen should be given, and larger quantities of fat and carbohydrates. Thus, in the adult, the diet should be confined to 1265 grains albumen, 480 grains fats, and 7500 grains carbohydrates, or one-half the quantity of albumen may be given, provided the fats be doubled or trebled. Albumen cannot, however, be entirely left out of the diet, otherwise the digestion of carbohydrates and fats will be seriously interfered with. Of the fats which are especially readily digestible, the author gives the preference to cod-liver oil and cream. As regards albumen, the milk contains enough for the needs of the patient, and Senator confirms the general statement that milk diet is an excellent *régime* in the case of Bright's disease; but, although two to three quarts may be given a day to a patient, he does not advise the restriction of the patient to an exclusive milk diet, for the patient in time will become absolutely incapable of taking it. It is well to mix with the milk a little brandy or other substance, which may be left to the choice of the patient. Koumiss or képhir are likewise of value, particularly on account of the alcohol and lactic acid which they contain. Amylaceous substances, especially the milk of almonds, give excellent results, while meats which are poor in ptomaïnes, such as the white meats, fish, etc., are especially to be recommended.

Eggs may be given, since Oertel and Schreiber have determined that the ingestion of eggs does not produce albuminuria, and does not increase the albuminuria already present. Nevertheless, eggs in too large quantity are dangerous. Large quantities of liquid are to be recommended in chronic Bright's disease, but beer, on account of its richness in extractive matters, is absolutely contraindicated. Muscular activity, leading to the production of extractive matters, which tend to accumulation in the organism, is very dangerous, and the exercise of the patient should be limited as much as possible. As regards diuretics, digitalis, strophanthus, and caffeine should be carefully watched, but may occasionally prove of service. As chronic nephritis is most often associated with general arteriosclerosis, iodide of potassium may prove of value, but the attention then should be directed towards the heart. Smoking should likewise be forbidden, for tobacco in these cases exercises a deleterious action on the cardiac blood-vessels.

In opening the discussion, PROFESSOR ZIEMSSEN especially emphasized the importance of the distinction drawn by Professor Senator between the parenchymatous and the interstitial forms of nephritis as indispensable from the point of treatment.

Parenchymatous nephritis especially demands diuretic treatment, but the abuse of remedies in this form of nephritis is especially dangerous. No drugs should be used unless clearly indicated. Acetate of lead, tannin, and fuschin have been tested in the treatment of albuminuria and their inefficacy positively demonstrated. It appears that the iodide of potassium has given somewhat more favorable results, but the true treatment of albuminuria is still the milk diet joined to the most rigorous attention to hygiene. The activity of the circulation must be maintained at all price, and this may be best accomplished by baths of hot water or vapor baths, taking especial care to prevent all possible chilling of the patient. Thus warm baths taken at home, and lasting fifteen or twenty minutes, should be followed by wrapping the patient in dry sheets, with careful avoiding of any exposure to draughts. When the blood-pressure is notably reduced digitalis may be employed with care. Theobromine is also of value in small doses, and it may be prescribed for a long time without any inconvenience.

This, in Ziemssen's opinion, is the best diuretic of all, since it does not irritate the

renal apparatus. Calomel, on the other hand, is powerless to cure the œdema of Bright's disease. Cream of tartar is, in the author's opinion, the best cathartic in this connection. Capillary drainage of œdematous tissues will also prove of great service, although Ziemssen recommends that the capillary tubes should never remain more than twelve hours in position, and they should be carefully covered with antiseptic salicylate dressing.

Chronic interstitial nephritis offers a double indication. The one concerns the general state, as to the cause, whether syphilis or arterio-sclerosis; the other deals with the complications in the organs of circulation. As regards the first indication, it is necessary to send the patients into warmer climates, to prescribe a regular mode of life, and to submit them for a long time to the action of the iodide of potassium. If there is excessive blood-pressure, the patients should be positively confined to bed, revulsives may be applied to the præcordial region, and even bleeding may be resorted to, above all, if there are uræmic accidents.

In continuing the discussion, Dr. Mosler likewise confirmed the statements of his predecessor that the treatment of Bright's disease was especially the treatment of symptoms. He, however, appears to believe that the energetic treatment of acute nephritis might serve to prevent chronic Bright's disease. He likewise places especial reliance on the milk diet, which at the same time nourishes and washes out the kidneys. He, however, believes that calomel would largely prevent uræmic accidents.

Dr. Winternitz also laid great stress on the value of the milk diet, and advised its inauguration in extremely small doses, a teaspoonful at a time, and then gradually progressing, while the addition of fat seemed further of advantage. He had, likewise, found some service from anointing the body with fats, such as lanolin, and he also recommended the prevention of muscular exercise by the patients; and as it is well known that physiological albuminuria is more marked before than after sleeping, the patients should be kept as quiet as possible, and diuresis produced by vapor-baths and massage.

Professor Ewald especially recommended the use of milk which had been peptonized, to which an additional amount of cream had been added. He also said that in chronic interstitial nephritis he had obtained satisfactory results in administering iodide of potassium in as large amounts as 150 grains a day. Diuresis he produces by the mixture of calomel and digitalis powder, while diaphoresis was to be accomplished by the use of warm vapor-baths while the patient was in bed and the administration, although with the greatest caution, of jaborandi and pilocarpine.

Klemperer likewise laid stress upon the importance of the milk diet, and he administers about two quarts of milk a day to the patient, 750 grains of butter, 7500 grains of bread.

Pribram had found that fuschin was absolutely inefficacious in the treatment of Bright's disease, although tannin had appeared to render service in combating the acute attacks in the course of chronic nephritis. Mineral waters, by increasing arterial tension, can prove very dangerous in the treatment of interstitial sclerosis, and may even cause hemorrhagic complications.

THE EMPYREUMATIC OIL OF COFFEE OR CAFFEONE.

When coffee is roasted, an empyreumatic oil is developed, which is supposed to impart to it new physiological properties. The actions of this substance have been studied chiefly by means of a distillate obtained from a strong infusion of coffee; by a comparison of the effects produced by the use of preparations of raw and roasted coffee, or by the administration of the pure oil.

In experiments on three individuals, Lehman found that the distillate from roasted coffee caused nervousness and slight sweating, and acted on the brain, affecting the mental faculties rather than the imagination. The solid constituents of the urine, such as urea, were diminished to a greater extent than by caffeine. After large doses there occurred congestion, profuse sweating, and sleeplessness. In two instances diarrhœa was noted. Nasse, in experiments on animals, states that when he injected a few drops of a strong infusion of freshly-roasted coffee into the jugular vein of a rabbit, peristaltic movements of a decided character occurred in the intestines, which he was unable to produce with caffeine. Méplain obtained from a litre of strong infusion of coffee two hundred grammes of a liquid which possessed the aromatic odor of roasted coffee and a slight bitter taste. After the ingestion of this, the pulse was increased from 64 to 74 per minute, arterial tension was diminished, and the face con-

gested. Marvaud obtained similar results. Rabuteau states that he has "recognized in caffeone the exciting properties attributed to coffee. Everybody knows that an infusion of coffee hinders sleep, but that this effect is not invariably present. We have wrongly attributed this difference in action to idiosyncrasy, but it is due to a difference in the composition of the coffee, for while an infusion of coffee containing caffeone prevents sleep, the same effect is not produced by the ingestion of an infusion which has been freed from caffeone by prolonged boiling, or by that which has been prepared from coffee too much roasted, or from green coffee, or which contains a small quantity of the particular substance which gives coffee its peculiar odor." He also found that caffeone possesses decided toxic properties, and prevents the development of low organisms in organic fluids. Binz, in experiments on three dogs with a distillate, obtained results in some respects opposed to those already recorded. The distillate, he states, was of a light golden color, of a very aromatic odor and taste, and cloudy when cold. In one experiment a dog, weighing 720 grammes, was given by the stomach 25 c.c., representing the one-half of the distillate from 22 grammes of coffee, in 150 c.c. of hot water. No phenomena were observed, except a quickening of the heart-beats from 110 to 145 per minute. In another experiment with a dog, weighing 1790 grammes, and drunk with alcohol, 12 c.c. of a distillate from 16 grammes of coffee in 1 litre of water were injected subcutaneously in two places. In six minutes the respiration-rate was doubled in depth and frequency. In the last experiment the dog weighed 1840 grammes, and was completely narcotized with alcohol. Before giving the caffeone the arterial pressure was 76 mm. of mercury and the pulse 39 in fifteen seconds. 20 c.c. of a distillate of 85 c.c., which was obtained from 20 grammes of roasted coffee in 100 c.c. of water, were injected subcutaneously, and 50 c.c. given by the stomach. In ten minutes the pressure fell to 68 mm., in fifteen minutes to 66 mm., and in forty minutes to 56 mm. The force of the pulse was doubly strong, and the heart-beats increased in frequency. The diminution of blood-pressure he consequently attributes to vascular dilatation.

It is obvious that in the investigations above referred to, the actual quantities ingested of the so-called caffeone were not known, and an effort was made by Drs. Hare and Marshall to isolate this substance and study the effect of definite doses. Their attempts, however, met with failure. Their investigations have recently been extended by Dr. Edward T. Reichert, who published experiments in the *Medical News* for May 3, 1890, which show that the results obtained in Drs. Hare and Marshall's experiments were mechanically produced through the presence of an insoluble oil in the blood, since Dr. Reichert has found that olive oil produced precisely similar results, while further he found that the subcutaneous administration of the oil of coffee, as used by Drs. Hare and Marshall, was absolutely inert.

The positive results recorded by various observers following the ingestion of a distillate from roasted coffee, the evident differences in the activities of infusions prepared from raw and roasted coffee, the change in the properties of the infusion of roasted coffee, which occurs from continued boiling, or in the seeds by excessive roasting, certainly lead to an inevitable conclusion that some volatile principle is developed during the roasting, which is dissipated by prolonged heating and which possesses definite physiological properties. It would, therefore, naturally be inferred that such a substance would pass over in the early distillate from a strong infusion of coffee. Dr. Reichert consequently prepared a distillate by placing 500 grammes of freshly-roasted coffee in a Florence flask, adding sufficient water to cover it, and collecting the first 200 c.c. distilled. This was of a pale-yellow color, slightly turbid, bitter, and had the strong aromatic odor of roasted coffee. A small dog, weighing 6 kilos, whose carotid was connected with the kymographion, was given, by means of the external jugular vein, within ten minutes, 105 c.c. of this distillate in doses of 10 c.c., but without any definite effect on arterial pressure, pulse, respiration, bodily temperature, or otherwise. A similar distillate was prepared from other samples of coffee, but all were inert, although appropriate tests demonstrated the presence of organic matter. The opposite results obtained by different observers and Dr. Reichert led to the belief that this hypothetic principle is more volatile in some samples of coffee than in others, but whatever its nature, it is clearly not identical with the empyreumatic oil in coffee.

GURJUN OIL AS AN EXPECTORANT.

In the *Lancet* for May 3, 1890, Dr. William Murrell writes that he has recently

been using copaiba as a remedy for chronic bronchitis and winter cough, and found that, although it was an expectorant of great excellence, it had the grave disadvantage of bringing out a rash, attended with intense itching, and often accompanied by irritation of the throat, diarrhœa, and vomiting. To obviate this difficulty, the author endeavored to find some drug allied to copaiba which would exert the required action on the bronchial mucous membrane without affecting the skin. In this connection gurjun oil occurred to Dr. Murrell, which at one time was extensively used to adulterate copaiba. Gurjun balsam or wood oil, as is well known, is a balsamic exudation obtained, by incision and the application of heat, from the trunk of *Dipterocarpus turbinatus* and other species growing in the East Indies. It is a transparent liquid, of the consistence of olive oil, of an opaque, dingy, greenish-gray color, as seen by reflected light, and having an aromatic odor and taste not unlike that of copaiba, but without its acridity. Some years ago it was brought prominently into notice by Dr. Dougall, of the Andamans, as a remedy for leprosy, but seems to have attracted but little attention in this country.

Dr. Murrell gave it in doses of 1 drachm and then 2 drachms three times a day. He prescribed it in the form of a mixture, with liquor potassæ, spirit of nitrous ether, mucilage of acacia, and cinnamon-water. It is not an inviting mixture, as it has a tendency to "curdle." After a time Dr. Murrell mixed it with extract of malt, 2 drachms of the balsam to an ounce of the extract, three times a day, and this was taken without difficulty. In several cases he gave in addition tincture of jaborandi or nitrate of pilocarpine at bedtime, so as to produce profuse sweating, but no eruption resulted. It has been recommended as a remedy for gonorrhœa and gleet, but the author states he has had no experience in this direction.

INTESTINAL ANTISEPSIS.

At the recent meeting of the Ninth Medical Congress in Vienna, PROFESSOR CANTANI read a paper on this subject (*La Médecine Moderne*, May 1, 1890), in which the credit for having first attempted intestinal antisepsis was given to Bouchard, who treated his typhoid fever patients with a mixture of charcoal and iodoform, naphthol in large doses, or even salicylate of sodium. The efficacy of this treatment is, however, still doubtful, and substances administered in the form of a solid can only with difficulty penetrate the intestinal mucous membrane, which is the seat of the pathogenic microbes. Cantani, therefore, suggests washing out the intestine by means of enemata, so as to act directly on the intestinal membrane, and so accomplish intestinal antisepsis much more reliably than by the administration of remedies by the mouth.

The great difficulty, however, is to pass the ileo-cæcal valve, but this is, however, by no means entirely impossible, since he injected into the rectum of a patient a large quantity of olive oil, and found one hour afterwards the patient had vomited the oil. The oil had, therefore, passed the ileo-cæcal valve and also the pyloric sphincter. It therefore becomes possible to wash out the small intestine by the injection of enemata made antiseptic by the addition of carbolic acid, tannic acid, or sublimate. The two former are the more reliable, since the sublimate tends to combine with the albuminous substances found in the intestine, and thus form an absolutely insoluble precipitate of albuminate of mercury. Pure oil itself is an excellent antiseptic. Tannic acid is the best. It may be administered in very large doses, and is endowed with considerable power as a microbicide. In one per cent. solution tannin kills the microbe of cholera in pure cultures. The author does not claim that these enemata kill all microbes, but they suffice to largely prevent the growth of the microbes and make the intestinal medium unfavorable to their development.

Thus, in the commencement of typhoid fever, if the bacilli are still on the surface of the mucous membrane, this use of the antiseptic injection appears of undeniable value, but later, when the bacilli have penetrated Peyer's patches, this action is no longer possible, but even then the injections diminish or neutralize the virulence of the ptomaïnes formed in the intestine.

SOME DANGERS CONNECTED WITH THE CIRCULATORY ORGANS IN DIPHTHERIA.

At the meeting of Harveian Society of London, on April 17, 1890, DR. SIDNEY PHILLIPS read a paper on "Some Dangers connected with the Circulatory Organs in Diphtheria" (*Medical Press and Circular*, May 7, 1890). Many of the conditions were as

serious and as frequent causes of death as the affections of the respiratory apparatus itself, though their symptoms were often less obtrusive. The paper was based on the records of one hundred cases of diphtheria which had come under the writer's observation. Intracardiac thrombosis was an occasional cause of death in diphtheria, especially on the right side of the heart. Cases were read showing how suddenly death might result from a clot forming within the right ventricle, although the clot formation took a certain time, yet no objective symptoms of its formation might occur, the left ventricle acting, as has been demonstrated, with sufficient power to drive the blood through the systemic and pulmonary vessels without any action of the right side of the heart. The circulation was consequently kept up till the clot was large enough to prevent any blood flowing through the right ventricle, when death suddenly occurred. Extreme slowness of the pulse was noticed in three per cent. of the cases of diphtheria; all these cases were accompanied by vomiting, and ended fatally; no treatment appeared of any avail, except possibly strychnine. The prognosis of cases in which the pulse became greatly slowed was very serious. The same was the case with regard to patients in whom the pulse for some days often continued extremely rapid; these cases were much more frequent than the slowed pulse, but where a pulse-rate exceeded 200 per minute for two or more days in every case death occurred, and in nearly all from syncope. The extreme rapidity of pulse was apt to be present in the first week of the disease, and at a later period when other signs were favorable,—in many cases it was associated with repeated vomiting, in others with great drowsiness, but in some cases with no symptoms whatever. Irregularity of the pulse was not uncommon, nor was it of unfavorable prognosis. Syncope in diphtheria occurred in twenty-six of the one hundred cases, but these were mostly severe cases, as slighter ones were not admitted to hospital. In many cases it was preceded by extreme rapidity or slowing of the pulse, or by approximation of the first and second sounds of the heart, but in some cases it occurred without any warning of this nature. It occurred very early in the disease, or at any later period, frequently after the third day, and when patients appeared to be progressing favorably, or had been discharged from hospital as cured. The notes of cases illustrating this were read. Syncope attending either rapid or slow cardiac action was only attributable in most cases to disturbed innervation, with or without other paralyses. Treatment of these cases due to nerve disturbance by cardiac tonics was of little avail, but stimulants and feeding, through a tube if necessary, was insisted upon. Dilatation of both sides of the heart was common in diphtheria, being brought about by softening of the muscle-fibre; on the right side, in addition, collapse and congestion of the lung especially led to it, and if the heart had become dilated before tracheotomy was performed, it often failed to regain its power after the operation. Early tracheotomy was, therefore, desirable where collapse of the lung at all threatened. On the left side of the heart the softened muscle-fibre tended to yield, and this was probably assisted by the increased tension associated with albuminuria, or defective renal rheumatism without albuminuria. Hemorrhage from the mucous surfaces were not uncommon in diphtheria,—in three cases of the one hundred, fatal epistaxis occurred; in four there was bleeding from the thyroid body after tracheotomy; in one case hæmoptysis associated with purpura. Endocarditis probably was not ever a result of diphtheria, though it might occasionally result from dilatation or anæmia.

THE EMPLOYMENT OF RETINOL AND COLOPHANE IN THE TREATMENT OF VAGINITIS.

Retinol is a liquid hydrocarbon, occurring in commerce under the name of rosinol, and obtained by the dry distillation of colophane with other hydrocarbons,—retinaphtha, retinyl, and metanaphthalin. Retinol is of a brown or yellowish color, has the consistency of a fat, and has a slightly bitter taste; its reaction is slightly acid, on account of the presence of traces of pinic acid. Retinol has been employed in the treatment of gonorrhœa in the form of capsules and in the form of an application in metritis. Spread over the surface of the body, it forms an adherent varnish-like coating. It shares in the antiseptic properties of the other balsams, and possesses the additional advantage of dissolving a great number of active substances, such as oil of cade, camphor, naphthol, balsam of Peru, etc.

Introduced in the pure state into the vagina, it covers the surface with an antiseptic layer. In *La Médecine Moderne* for April 24,

1890, DRS. BALZER and CHEVALET state that for several months they have been treating cases of vaginitis of different degrees of intensity with tampons soaked in retinol. These tampons they claim are perfectly well borne, produce no pain, no irritation whatever, and that they have proved extremely successful in the cure of vaginitis, especially where this disease is accompanied by vegetations. They have endeavored to obtain retinol in the form of a solid mass, and, after numerous attempts, which they admit are not yet thoroughly satisfactory, they have finally tested it by mixing it to saturation with colophane, the retinol then giving a mass which readily liquefies in the vagina, but possesses the disadvantage of solidifying in the vulva, and so proving inconvenient. By, however, adding a certain quantity of powdered oak-leaves to this mixture of retinol and colophane, a mass is obtained which may be readily manipulated, and is free from the disadvantages above alluded to, especially when only employed every three or four days. When, however, application is to be made daily, they have found that the mixture of retinol and colophane with borate of sodium gives still better results, although the latter salt produces some smarting of the vulva when there are any erosions. The authors, finally, recommend retinol not only in the treatment of vaginitis but in skin-affections, where its adhesive and antiseptic properties without irritation renders it an admirable excipient of a large number of substances.

THE RAPID HEART.

At the meeting of the Medical Society at London, held May 5, 1890, the annual oration was delivered by DR. A. E. SANSOM, who took for his subject "The Rapid Heart" (*British Medical Journal*, May 10, 1890). The orator justified his choice of a subject on the ground that there were very few medical men who were not occasionally perplexed concerning cases involving disturbances of the normal action of the heart in relation to diagnosis, prognosis, and treatment. He insisted on the equal undesirability of overrating as of understating the consequences of such perturbations. His remarks were confined to cases in which the heart's action was morbidly accelerated, leaving on one side those cases in which irregularity of action coincided with acceleration. He excluded, also, cases in which valvular or other organic disease of the heart was present, and cases in which the rapidity was due to fever or analogous general condition, or to peripheral irritation, or in which the acceleration was "paroxysmal." Moreover, cases of palpitation were likewise excluded when existing in a heart which under ordinary circumstances had a normal beat. By "rapid heart" he intended to comprise the cases in which the cardiac action was set, so to speak, for an abnormally rapid rate. The orator then defined the normal beat as one not exceeding 90 per minute in the adult. He pointed out that in infants and young people not only is the heart-rate normally more rapid, but it is also extremely susceptible to accelerating influences which may, under certain circumstances, become more or less persistent. He then gave a list of the affections in which this abnormal rapidity of the heart's action is found: 1, in Graves's disease, in which the chief cause of danger is the cardiac involvement; 2, the irritable heart of soldiers, noticed and described by Dr. Da Costa, of Philadelphia, one feature of which was that, although the pulse-rate is persistently quickened, the breathing remains normal, or nearly so, often resulting in cardiac hypertrophy or dilation,—this form of rapid heart is peculiarly common in times of great political and social excitement; 3, the rapid heart of osteoarthritis, specially commented upon by Dr. Spender, of Bath; 4, the rapid heart without notable morbid association, recorded by Bristowe, Broadbent, and Samuel West. He called attention, in relation to these cases, to the fact that the rapidity often existed for long periods of time without palpitation. Moreover, the cases which he had in his mind were not "paroxysmal," in the sense that the hurry was persistent, and the condition was often associated with a curious absence of distress, or even of discomfort, on the part of the patient. In spite of this latter feature, the orator insisted upon the fact that this condition of rapid heart was serious and dangerous. Of seven such cases recorded by Dr. Bristowe, five proved fatal, with symptoms which seemed to show that the affection was in causal relation with the fatal result. In reference to the fact that this condition was found in persons giving no other indication of cardiac disease, he asked whether in such cases it was to be regarded as an affection of the myocardium, or of some portion or portions of the nervous system. He quoted seventy-five cases from his note-books, in which no evidence was found of organic disease of the heart or of any other

structural disease in obvious association therewith. They were, moreover, all cases in which the rapid heart-beat had existed for comparatively long periods of time. He grouped these cases under two heads: First, those in which there was no association whatever with the recognized cardinal signs of cardio-vasomotor disease, forty-six in number, comprising thirty females and sixteen males; secondly, cases in which this association existed, twenty-nine in number, twenty-four females and five males. He read detailed notes of a case belonging to the first category, in a lady, aged 52, with fatal termination, and another in a man, aged 61, in whom the condition appeared to date from physical effort, also ultimately followed by a suddenly fatal termination. He gave a synopsis of the chief points in relation to this group of cases, the maximum pulse-rate being from 110 to 260, and he discussed the circulatory and nervous phenomena associated therewith. In many of the cases the onset was ascribed to physical or mental overstrain (shock), but in others the onset of the symptoms was gradual, and associated only with vague dyspepsia. Restlessness and insomnia were common. He then proceeded to discuss the cases coming in the second group, of which twelve out of twenty-nine were obviously associated with Graves's disease. He narrated two of these cases which served to demonstrate the types. The orator concluded that the conditions in the two sections of cases were closely allied, both being probably secondary to nervous implication. He regarded the differences between the two sets of cases as of extent rather than of kind. With regard to treatment, he said that while in the less severe cases this had proved of great value, it was practically useless in the very marked cases. He particularly commended the application of the continuous current of electricity over the region of the great nerve-centres.

THE ADMINISTRATION OF INSOLUBLE CRYSTALLINE SUBSTANCES.

The use of crystalline synthetic products is becoming now so universal that the best mode of administration of such bodies becomes a matter of considerable importance. It has been found a point of much difficulty to find satisfactory modes of administration, when in the form of fluid media, of such bodies as benzoic acid, antipyrin, sulphonal, naphthol, etc. Various methods have been employed, with the object in view of giving such a substance in the form of solution. In some cases it has been recommended to dissolve the remedy in alcohol, and add it to water sweetened with syrup; in other cases it has been advised to dissolve the crystalline organic principle in boiling water, and then to add syrup, while in other cases it has been recommended to rub the product up with an equal weight of sugar or gum, and then suspend it in a watery vehicle.

In a note published in the *Répertoire de Pharmacie*, April 10, 1890, MR. M. P. CARLES shows that these three different plans are by no means equal in effectiveness. After dissolving in alcohol and then in water, the resulting product is turbid in appearance and deposits crystals. In boiling water the insoluble part separates slowly and crystals form, which cling in great part to the bottom, so that the patient, after a very short time, does not receive more than a third or half of the dose prescribed, while when the crystals are separated by agitation, they often produce severe irritation of the throat, and may cause violent coughing or even vomiting. Carles, therefore, is strongly in favor of careful trituration of the crystalline principle with its own weight of sugar or gum. With this method all the crystalline needles are destroyed, and there is, therefore, no danger of their reappearing when the solution cools, and the insoluble particles are uniformly suspended in the liquid, especially when it is first subjected to slight shaking.

The author, therefore, recommends the previous powdering of such crystalline mineral or organic principles with sugar or gum, and then suspending them in the form of an emulsion in water.

A RAPID METHOD OF CURE OF ABSCESS OF THE LIVER.

In a paper with the above title, published in the *Medical Press and Circular* for April 30, 1890, DR. VAUGHAN HARLEY tabulates, in the following aphorisms, the clinical and pathological facts concerned in hepatic abscess:

1. The hepatic abscesses met with in the tropics, no matter whether occurring in natives or in Europeans, differ in no essential particular whatever from those met with in temperate zones, except in one single item, —namely, in that of relative frequency,—inflammations of the liver much more fre-

quently ending in purulent formations in hot than in cold countries.

2. Men are far more liable than women to liver suppurations.

3. Although an abscess of the liver may occur at any period of life, it is much more common between the ages of 20 and 50 than at any other.

4. Suppurations of the hepatic tissues are most frequently met with in strumous subjects; and the most unsatisfactory cases of all to treat are those in which a syphilitic taint is superadded to a constitutional struma.

5. The most noted predisposing causes to liver abscess are struma and alcohol, even when alcohol is indulged in what is usually regarded as the limits of moderation.

6. The commonest of all the exciting causes is a sudden chill, as pointed out by Sir William Moore.

7. All abscesses of the liver tend to evacuate themselves by burrowing their way to the surface of the organ, and seeking an outlet for their contents either directly through the abdominal walls, or indirectly (in general) through the pulmonary or digestive systems.

8. It is futile to evacuate a liver abscess either by knife or trocar so long as a free opening is not left to give escape to the subsequently formed pus.

9. When an accumulation of pus has taken place in the liver, it not only tends to do serious mischief by causing disintegration of the hepatic tissues, but, from its becoming putrid, to kill the patient by blood-poisoning. This likewise occasionally happens when hydatids of the liver suppurate, which they frequently do when they contain daughter cysts.

10. Cancerous and tubercular deposits in the liver, by disintegration, sometimes lead to the formation of purulent formations.

11. As a natural corollary to these facts, Dr. Harley claims that so soon as the existence of purulent matter in the liver is detected, it should be evacuated, and the speedier it is done the better will be the patient's chances of recovery.

The presence of pus being suspected, its exact situation should be prospected in the following manner: An eight-inch long fine exploring trocar is to be passed into the liver obliquely from right to left, or *vice versa*, according to the site the abscess is thought to occupy. Then slowly withdraw the instrument, so as to allow sufficient time for a drop of pus to appear at its orifice. If pus be found, its situation and depth in the organ should be carefuly noted. If blood instead of pus flow, the bleeding ought to be encouraged. For in cases of suspected hepatic abscess there is always more or less congestion, and marked benefit is likely to arise from a free hepatic phlebotomy.

The presence of pus having been substantiated, before withdrawing the exploring canula allow as much as possible of the purulent liquid to flow from it. Immediately, on its ceasing to flow through the narrow tube, introduce, in exactly the same direction and to precisely the same depth, a canula of the diameter of a No. 8- or No. 10-sized English catheter, and through it empty the abscess completely by means of an aspirator. When empty, wash the cavity out with tepid water containing ten grains of boracic acid to the ounce, and continue to do so until the liquid returns clear and colorless. Then insert as large a sized silk elastic catheter as will pass through the canula into the abscess cavity, and, on withdrawing the canula, cut off the extruding end of the catheter to within one and a half inches of the opening in the abdominal wall, and securely fasten it there.

This done, cover the whole with a hot, sloppy, linseed poultice.

The abscess cavity should be washed out with boracic acid solution night and morning, and poultices constantly applied until the purulent discharge almost entirely ceases.

If, however, as occasionally happens, the cavity refills, another opening is to be made at a short distance from the first, and a second drainage-tube introduced. This counter-opening, by facilitating the washing-out process, greatly hastens the cure.

The advantages of this mode of treatment are illustrated by the reports of two most unfavorable cases, the first being one in which the patient nearly died from blood-poisoning in consequence of the absorption into the circulation of poisonous pus; second, of a multiple abscess occurring in a greatly-enlarged liver of a strumous patient. Both of these cases, in spite of their unfavorable nature, made exceptionally rapid recoveries. The extreme success in these cases Dr. Harley attributes to the following facts: First, in the employment of boracic acid we have not only a thoroughly safe antiseptic agent, but the great advantage which accrues from the use of one free from the objection of coagulating the albuminoids in the pus, and thereby

inducing a fouling of the instruments, such as is unfortunately the case with carbolic acid and most other antiseptic preparations. Secondly, the daily washing out of the abscess cavity with boracic acid solution not only expedites the healing process, by keeping it clean, but has the further advantage of rendering it quite unnecessary to take any precautions against the intrusion of air into the cavity, no matter how large it is. Thirdly, the washing out of the cavity with boracic solution, from its enabling us to get rid of all the purulent matter, thick as well as thin, does entirely away with the necessity of making a large opening either through the abdominal walls or into the liver tissues with a knife or other instrument, a point of no mean moment, seeing that it is a well recognized surgical axiom that the smaller the breach of continuity in any animal tissue, no matter whether it has been made accidentally or intentionally (other things being equal), the proportionally quicker is the healing process.

SALICYLATE OF MERCURY.

Salicylic acid forms salts by the substitution of metals for the hydrogen atom of the carboxyl group. Under certain circumstances the hydrogen atom of the hydroxyl group may likewise be substituted by metals, and salicylic acid is thus capable of forming two series of salts. The salts of the first series are called primary or neutral salicylate salts. The salts of the second series are called secondary basic salts. The salicylate of mercury is a secondary basic salt, and corresponds to the formula

$$C_6H_4\begin{matrix}O\\COO\end{matrix}>Hg.$$

This remedy was first formed in 1881 by Lajoux, but was first used in medicine in 1887 by Dr. Aranjo.

Various methods are in employment for the preparation of this salt, which occurs in the form of a white, amorphous, odorless, tasteless powder, almost insoluble in water and alcohol. Caustic soda does not decompose it, but dissolves it in forming a double salt; so also salicylate of mercury is dissolved in solutions of sodium or potassium carbonate, with the liberation of small amounts of carbon-dioxide. Chloride of sodium, chloride of potassium, and the bromides also form with it double salts, which are soluble in water.

As an antisyphilitic, salicylate of mercury may be given internally in the dose of from $\frac{1}{6}$ to $\frac{1}{2}$ of a grain in pill form two or three times daily, or it may be given in the form of intramuscular injection in the amount of $\frac{1}{4}$ of a grain, with an equal amount of potassium carbonate. Externally this salt has been employed as dressings or as salves in syphilitic ulcers and mucous patches, and as an injection for gonorrhœa with potassium carbonate in the strength of 6, 15, or 45 grains to each quart of water.

In the *Zeitschrift für Therapie* for April 1, 1890, a number of formulæ are given for the external and internal employment of this remedy, of which we reproduce the following:

℞ Salicylate of mercury, gr. xv;
Powdered licorice-root, enough to make 60 pills. M.
Sig.—1 to 2 pills to be taken 3 times daily, after eating.—(SCHADEK.)

℞ Salicylic acid,
Potassium carbonate, āā gr. ii;
Distilled water, ♏clx.
Sig.—For subcutaneous injection.—(PLUMERT.)

℞ Salicylate of mercury, gr. xv;
Liquid paraffin, ♏clx. M.
Sig.—For intramuscular injections.—(JADASSOHN AND ZEISING.)

℞ Salicylate of mercury, 1 part;
Vaseline, 30 parts;
Sig.—As a salve or ointment.—(PLUMERT.)

℞ Salicylate of mercury, gr. xv;
Magnesium carbonate, ℥v;
Sig.—As a powder for external employment.—(PLUMERT.)

℞ Salicylate of mercury, gr. ss;
Sodium carbonate, gr. xv to xlv;
Distilled water, ℥viii.
Sig.—For an injection in gonorrhœa.—(SCHADEK.)

℞ Salicylate of mercury,
Potassium carbonate, āā gr. xv to xlv;
Distilled water, Oii.
Sig.—For injection in gonorrhœa.—(PLUMERT.)

THE INFLUENCE OF THE RUSSIAN STEAM BATH ON THE ELIMINATION OF CERTAIN DRUGS FROM THE ORGANISM OF HEALTHY AND SICK PEOPLE.

DR. SAZONOFF, of St. Petersburg, has carried out two series of experiments (in Professor V. S. Manasseïn's clinic) to determine the effects of a Russian steam bath of from 45° to 52° C., of thirty or forty minutes' duration, on the elimination of iodide of potassium and salicylate of sodium in the

healthy and sick. The iodide (*potassium iodatum purissimum*) was given always on an empty stomach, one hour before the patient's dinner, in a dose of 10 grains, either in wafers or dissolved in one ounce of distilled water. Its presence was determined both in the saliva and urine. The salicylate was administered in similar doses and under similar conditions, and was sought for in the patient's urine. The principal outcome of the author's researches may be condensed somewhat as follows (*Medical Chronicle*, May, 1890):

1. *Iodide of Potassium.*—Fifty observations on twenty-three subjects, of whom nine (seven men and two women), aged from 21 to 58, were healthy, while the other fourteen (men), aged from 22 to 35, were suffering from croupous pneumonia (two), chronic pneumonia (one), intermittent (three), dropsy with anæmia (two), acute nephritis (three), pleurisy (two), chronic gastro-intestinal catarrh (one). Both in healthy and sick subjects the bath, as a rule, retards the appearance of the iodide in their saliva and urine, and prolongs the duration of the elimination through either of the channels.

Thus, in healthy persons, under normal conditions (that is, without the bath), the first traces of iodide of potassium appeared in the saliva on an average of from 6.5 to 9.5 minutes after the ingestion; meanwhile, after the bath the iodide was first detected as late as from 10.5 to 13.5 minutes, the retardation, therefore, amounting to about four minutes. The elimination under normal conditions lasted for from twenty-four to forty hours, on an average for twenty-nine hours. After the bath the duration oscillated between twenty-eight and forty-eight hours, the average being thirty-nine hours; the surplus varied from two to ten hours, averaging six hours. As regards the elimination through the kidneys in the healthy, the duration under normal conditions oscillated between twenty-six and forty-two hours, the average being thirty-two; under the influence of the bath, the average amounted to thirty-nine hours, the limits to thirty-two and forty-eight; an average increase was seven hours, the limits being two and fourteen. Of twenty-three cases, in five only the effects were *nil*, and in one only some acceleration of the elimination (in a nephritic case improving under treatment) was noticed. In some patients (two cases of pleurisy, one nephritis, one anæmia with dropsy, and one malarial cachexy), the excretion of iodide in the urine was found to be retarded, even without the bath, and, under the influence of the latter, showed a still greater retardation.

2. *Salicylate of Sodium.*—Forty observations on twenty male subjects, ten of them, aged from 22 to 25, being healthy; the other ten, aged from 22 to 65, were suffering from anæmia with dropsy (one), bronchitis (two), traumatic muscular injury (one), acute rheumatism (two), pleurisy (one), chronic nephritis (one), cirrhosis hepatis (one), intermittent (one). In five persons only the bath did not produce any impression on the elimination of the salicylate. In the remaining thirteen (healthy and sick), it retarded the appearance of salt in the urine and increased the duration of the elimination.

Under normal conditions—*i.e.*, without the bath—the first traces of the drug made their appearance in the urine between twenty and sixty—on an average about thirty-three—minutes after the ingestion. Under the influence of the bath, the average rose up to forty-eight minutes, the limits twenty and eighty, a maximal retardation being sixty and a minimal ten minutes. The duration of the elimination under normal conditions varied between twenty and twenty-six hours and averaged twenty-two; under the influence of the bath it oscillated between twenty and thirty-four hours, the average being twenty-six, the limits eight and two. The greatest prolongation was observed in one case of nephritis, one of pleurisy, and one of emphysema in an old man.

3. On the elimination of the iodide, the bath exercised a by far more considerable influence than on that of the salicylate.

4. The retarding action of the bath on the excretion of the drugs may be explained by the fact that the bath drives the blood towards the periphery of the body and *eo ipso* makes all viscera anæmic (S. D. Kostuerin, Godlevsky, etc.). Such anæmic condition of the stomach and intestines naturally must retard the absorption, and a retarded absorption means a retarded elimination. Besides, the bath creates other conditions favoring the retardation; such are decreased energy of the cardiac action, lowered arterial tension, slackened speed of the blood-current, and weakened renal action.

5. A retarded elimination of drugs,—that is, a prolonged sojourn of drugs in the system in contact with tissues,—as induced by Russian baths, constitutes a very important point in practical therapeutics, and hence deserves the attention of the practitioner.

A COMPARISON BETWEEN SALICIN AND SODIUM SALICYLATE IN ACUTE RHEUMATISM, AND AS TO THEIR EFFECT UPON THE EXCRETION OF URIC ACID.

At the meeting of the Royal Medical and Chirurgical Society, held Tuesday, April 22, 1890, DR. A. HAIG (*British Medical Journal*, April 26, 1890) read a paper on this subject, in which, after alluding to the fact that salicin was generally considered to be of less value than a salicylate in acute rheumatism, he said his experiments as to the relative power of these drugs in producing a plus excretion of uric acid showed that, dose for dose, salicylate of sodium had about thirteen times the excretive power of salicin, while salol was weaker than a salicylate but more powerful than salicin. Their action in disease appeared to correspond roughly with their action on uric acid excretion. Salicin gave a much less marked reaction with perchloride of iron in the urine than an equal dose of a salicylate. Cases were brought forward showing the inferiority of the former in the treatment of acute rheumatism. Reference was made by Dr. Haig to his previous paper on salicylates in the *Transactions* of the Society, and the deductions then made as to the causation of acute rheumatism; further evidence was now brought forward. He also alluded to the action of drugs and diet in acute rheumatism, to Dr. Hilton Fagge's comparative tables, and to the effects of meat, exercise, cold, and damp. Speaking of the treatment by alkalies, Dr. Haig said their action as regards uric acid was similar to but less powerful than that of salicylates; the effects in disease corresponded with this. Acids and substances which raised the acidity, such as ammonia, caused retention of uric acid and did harm. The action of ammonia as an acid explained its value in the uric acid headache (migraine). Reference was made to the natural cure of rheumatic fever and to the way in which rest and milk diet affected the excretions. With regard to the excretion of acid from the skin, it was pointed out that suppressed perspiration was immediately followed by an increase of urinary acidity (Sir A. Garrod), while increased perspiration was also immediately followed by a decrease of urinary acidity. The reaction of perspiration under various conditions was described, and quotations from authorities given. Dr. Haig went on to say that the influence of increased skin activity in lowering the acidity of the urine could be easily demonstrated. All methods of treatment that were of any value in acute rheumatism caused a plus excretion of uric acid; and salicin and the salicylates were useful in this disease in exact proportion to their power of producing elimination of this substance. The question was asked, Is acute rheumatism due to uric acid? and reasons were given for thinking that the joint symptoms were due to it. Objections were considered, and remarks were made on the difference between gout and rheumatism. It was said to be partly due to difference in the metabolic processes of young and old. It had been shown by Sir A. Garrod that uric acid was absent from the blood in acute rheumatism. The same author had suggested that inflammation destroyed uric acid. Dr. Haig believed that the uric acid was all driven out of the blood by high acidity and precipitated in the joints, and that such precipitation and not destruction of uric acid explained Sir A. Garrod's observation with regard to the effect of inflammation and the fever of rheumatism. The effect of fever and inflammation on the reaction of the blood and tissue fluids and the urine was described. The temperature was higher, and therefore the rise of acidity greater, and the precipitation of uric acid in the joints more complete in rheumatism than in gout. There were other causes that raised the acidity, as chill and suppressed perspiration, ingestion of acids and acid-forming foods, formation of acids in dyspepsia, etc. The effects of tonsillitis or local inflammation and of bacteria or draining emanations in producing fever and raising acidity were pointed out. The excretion of uric acid in acute rheumatism was referred to, high arterial tension at the end of an attack pointing to excess of uric acid in the blood; anything that raised the acidity at this time would cause a relapse. Conclusions were drawn as to the causation of the joint symptoms of acute rheumatism by uric acid.

DR. NORMAN MOORE considered that if rheumatic fever and gout were looked at from the point of view of anatomy they were two distinct diseases. In gout morbid joint changes were invariably found, while there were none in rheumatic fever. It was curious that if the knee-joints of patients who had died of mitral regurgitation were examined nothing abnormal was, as a rule, seen, although the cardiac condition was dependent on some previous attack of acute rheumatism. In the bodies of patients who had

died from rheumatic fever there was often evidence of endocarditis; in some cases of gout also there were changes in the endocardium, but he believed that in seventy-five per cent. of cases of gout the endocardium was free from disease. In gout, then, one perceived permanent injury to joints from changes in the cartilages, but in acute rheumatism transient injury to the joints and permanent mischief in the endocardium. Clinically, at first the anatomical view was confirmed and the two affections seemed distinct, but from time to time cases were met with which commenced as rheumatic fever and then passed on into gout. He contended that rheumatic fever was a term which covered several distinct pathological conditions. Two were distinct,—1, a variety of gout; 2, a condition closely allied to a true septic disease, going on to its most severe condition in ulcerative endocarditis. This might be due to micro-organisms, which might generate the endocarditis.

Dr. Garrod protested against the manner in which Dr. Haig was building up theory after theory on very fragile facts. He could not agree with the close relationship between gout and rheumatism for which Dr. Haig contended; it must be remembered that though the children of gouty parents might have rheumatic fever, yet very young children might have true gout, which was not in the least like rheumatic fever. Any theory of rheumatism must explain all the symptoms, and he insisted that rheumatic fever was a systemic disease, of which the joint-affection was only one manifestation.

Sir William Roberts stated that Dr. Haig seemed to regard uric acid as an essentially poisonous substance. It must be remembered that animals could eat uric acid, and have it injected into their blood, without suffering any inconvenience. Ebstein asserted that if a solution of uric acid in phosphate of sodium was injected into the cornea, necrotic changes took place, but that if only a solution of phosphate of sodium was injected, there were no necrotic changes. This was supposed to show the deleterious action of uric acid. He did not think any confidence could be given to these experiments. Uric acid was harmless until it was precipitated from the blood as biurate of sodium. This was a very insoluble salt in the blood; in fact, as insoluble as uric acid was in water. If uric acid was precipitated in the joints in rheumatic fever, it would be found there, as it was very insoluble. As a matter of fact, it never was found there.

Dr. Lauder Brunton suggested that the reason why uric acid was not found in the joints was possibly because some allied substance was formed which was afterwards excreted as uric acid.

Dr. Haig, in reply, said he believed that the reason no uric acid was found in the joints was because rheumatic fever was an acute disease, whereas gout was a chronic one. He was certain that urates could be got rid of in long illnesses, so that nothing was found in the joints excepting erosions of cartilages. If this occurred in gout, why should it not occur in rheumatic fever? He thought uric acid might be in the joints in solution. Micro-organisms might raise the acidity of the blood, and so determine an attack of rheumatism. Any drug, such as benzoate of sodium, which depressed the acidity of the blood, might be of value in the treatment of rheumatism, whereas benzoate of ammonium, which raised it, could do harm.

ASEPSIS OF INSTRUMENTS EMPLOYED IN THE URETHRA.

Dr. Picard writes in the *Gazette des Hôpitaux*, No. 28, 1890 (*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1890), upon the important and practical subject of asepsis of catheters and sounds before they are passed into the urethra and bladder. He considers, first, the question whether it is always a necessary thing, and the dangers to which its neglect may give rise; and, secondly, by what means the asepsis may be best and most easily brought about. The first proposition is considered incontestable. Although catheterism may be practised, it is acknowledged, for a long time without special precautions, and no ill consequences follow; still, this fact should not produce the idea of absolute innocuity. It has been too much the custom to attribute to the pre-existing disorder the catarrh of the bladder, the urethritis, or the orchitis, which follows at times the passage of a sound. When such an orchitis has been acknowledged as due to the operation, and even called, as it has been, *orchite du cathétérisme*, the fact was recognized, but not explained. If an abscess of the prostate supervened,—a rare accident,—it was admitted that the irritation produced had been too great. All of these conditions, once thought to be due to mechanical action, the author believes to depend upon sepsis.

The general complications which appeared

in the course of catheterism are still less well understood; the urinary fever in its varied types—that of acute frank access, similar to the access of an intermittent, or the slow fever of the continuous fever type—is attributed to resorption of altered urine, or by another theory to a reflex congestion, causing arrest of the renal secretion. Neither gives the key to the question, while each seems to possess some truth. There is, however, no doubt that all of these accidents have for cause infection of the urinary tracts, and are due to want of cleanliness of the instruments employed. The axiom is given that *a clean aseptic sound, no matter how often employed, never occasions purulent cystitis, urethritis, orchitis, urethral abscess, or urinary fever.* To this should be added, provided the urinary tract be not previously infected.

Respecting the means to be employed to secure the asepsis, the author confines himself to those easily secured by the general practitioner. Metallic instruments are most easily disinfected. Boiling in simple water or in salt water is regarded as giving practically the necessary guarantees. Boiling in strong carbolized water is preferable but often impracticable. Soft or semisoft instruments are more commonly employed, and require greater care. The soft, red caoutchouc sound, called after Nélaton, which is the most extensively employed, is one easily disinfected and kept rigorously clean. It may be dipped for a few seconds into boiling water, or it may be kept constantly in a strong antiseptic solution, such as a five per cent. phenic acid or a 1 to 1000 sublimate solution. It is recommended to wash the sound, thus kept in strong antiseptics, before using, either in boiling water or boric acid solution. After boiling, the instrument may be taken up in a clean forceps and placed in a jar containing a saturated solution of boric acid. A thread, previously fastened in the end of the sound, is slipped into a slit in the cork, and the sound is thus suspended, and can be readily withdrawn without handling when needed. Semisoft gummy catheters and sounds are not so easily sterilized. They should be placed in tubes, whose open extremity is then filled with absorbent cotton. The tube is then placed in boiling water and allowed to remain for half an hour, keeping the interior of the tube at 100° C. During this time this heat will sufficiently sterilize the tubes. It will be more prudent to repeat this process several times at intervals of twenty-four hours, for while this temperature destroys adult bacteria, it is without effect upon the spores. The sounds can be sterilized by placing in a tube of boiling water.

The hands of the physician should be thoroughly cleansed and rendered aseptic. The meatus and glans penis of the patient should be washed in a sublimate solution or with hot water. If the urethra is already infected, it should be washed out with a saturated solution of boric acid. For lack of these precautions a more or less acute cystitis has been again and again set up.

THE DANGERS OF CONSTIPATION IN CHILDREN.

In a lecture recently delivered before the Paris Hospital for Sick Children, Dr. Jules Simon (*Journal de Médecine et de Chirurgie*, May, 1890) called attention to the fact that while diarrhœa occurring in children was the object of the most extreme solicitude both on the part of parents and physicians, constipation, which possesses almost as great danger, was almost entirely neglected. He called attention to the case of a girl, 15 years of age, who was brought into the hospital suffering from extreme abdominal pain, following a fall upon the abdomen, which was, as is so often the case, followed by an abscess in the abdominal walls. The symptoms, however, rapidly increased in intensity, and were followed by vomiting and diarrhœa, and the patient died at the end of a few days. At the autopsy there was noted general peritonitis, with a perforation of the cæcum, surrounded by an old purulent deposit in this region. There was thus typhlitis, followed by perforation, which led to the formation of an encysted abscess in the pelvis, and only as the result of injury was general peritonitis produced. Dr. Simon believes, from the nature of the lesion observed, that the inflammation and the perforation were the consequences of marked constipation, leading to a rapidly fatal termination by traumatism. He believes that cases similar to the one reported are much more common than is ordinarily supposed, and he thinks that in many cases faulty development and numerous digestive disturbances are attributable to more or less obstinate constipation. Indeed, even in some cases death itself may follow either through the production of typhlitis and the perforation of the cæcum, as in the present case, or from intestinal obstruction. In another case, Dr. Simon stated that he had seen death produced by a stercoratious tumor

the size of a child's head. In such cases the author states that he has frequently obtained satisfactory results through the employment of electricity, but then, when the obstruction has been overcome by this means, it must be recognized that the patients are constantly exposed to a return of a similar state of affairs; for the intestinal tube, after such great distention, becomes the seat of structural modifications, so that it becomes almost incapable of resuming its normal condition. There is thus a practical point to be observed, whose neglect may be followed by the most serious complications, and in examination for the cause of obscure infantile troubles the occurrence of constipation as a possible factor should never be overlooked, especially as constipation may be actually obscured by an apparent diarrhœa.

ON OUABAÏNE IN WHOOPING-COUGH.

Ouabaïne is an alkaloid with the formula $C_{30}H_{46}O_{12}$, and is obtained by crystallization from a watery extract of the roots of the ouabaïo, a plant nearly related to the *Carissa schimperi*. The juice of the ouabaïo plant is used as an arrow-poison by the Somalis in East Africa.

Ouabaïne, its active principle, occurs in the form of rectangular crystals, which are white, transparent, colorless, and to a very slight degree bitter to the taste. It dissolves with difficulty in cold water, but much more readily in hot; it is altogether insoluble in chloroform or ether, and but a slight extent in absolute alcohol. Its best solvent appears to be partly concentrated alcohol, and this solubility is increased by heat.

Professor Gley and M. Arnaud, both of Paris, first studied the physiological effects of ouabaïne in frogs, rabbits, and dogs, and they found that in a frog $\frac{1}{2000}$ grain caused death by arresting the heart's action. In a dog, $\frac{1}{875}$ grain produced marked slowing of the respirations, without much cardiac disturbance; $\frac{1}{380}$ grain first stimulated and then slowed respiration, until it ceased completely. Subcutaneously, the drug was found to act much more powerfully than when given by the stomach; and $\frac{1}{65}$ grain, introduced into the blood through a scratch or otherwise, is said to be fatal to man.

Dr. Percy Wilde was the first to suggest the use of ouabaïne in whooping-cough, but, as far as we know, the cases reported by Dr. Wm. Gemmell in the *British Medical Journal* for April 26, 1890, are the first on record in which this substance has been employed for practical therapeutics. Dr. Gemmell's use of this remedy was limited to whooping-cough.

Treatment was begun in the first case on October 31, 1889, and very small doses were employed at the outset; $\frac{1}{52000}$ grain (or half the lethal dose for a frog) was considered sufficient to start with, but this was quickly found to have little or no effect in controlling the disease. Accordingly, the strength of the dose was increased from time to time, until it was found that the standard dose for, say, a child aged 5 years, was $\frac{1}{10000}$ grain in solution every three hours. Under this dose, if the case was one of moderate severity, the number of coughs and whoops usually rapidly diminished, but in two cases where the children were much prostrated by the violence and frequency of the cough, even this dose was found to be too small, and to them first $\frac{1}{8000}$ grain, and latterly $\frac{1}{2500}$ grain, was given every three hours. This is equal to about $\frac{1}{83}$ grain daily, and is nearly double the strength of the dose advocated by Professor Gley, who, in a recent communication, estimates the maximum daily dose for an adult as 1 milligramme ($\frac{1}{65}$ grain).

Forty-nine cases of whooping-cough have been treated with ouabaïne. Of these, twenty-five have been dismissed well, four died, and the remainder are still under observation. Of the four fatal cases, one died from diphtheria, one from tubercular meningitis, one from acute capillary bronchitis, and the fourth from gradual and progressive emaciation. None of the fatal cases were under treatment with ouabaïne for a longer period than ten days, one of them only for four, and in all of them ouabaïne had been stopped at least a week before death took place. In none of the fatal cases were there any symptoms which might have been interpreted as indicative of ouabaïne-poisoning.

Throughout the treatment of these forty-nine cases, careful record was kept of the temperature, pulse, respiration, urine, skin, etc., and the effect of the drug on the number and character of the coughs and whoops of each patient in twenty-four hours was closely watched. Except in one case (a remarkably severe one), treatment was not begun until the patient had been eight days in hospital; this was to enable comparison to be made of the periods before, during, and after treatment. No patient was dismissed until at least a fortnight after the last cough had been

heard. It is on the observations mentioned that the following general conclusions are based:

1. Ouabaïne is of marked benefit during all stages of whooping-cough, and, if carefully used, produces gratifying results. In the first stage, it cuts short the attack; in the second, it reduces the violence and frequency of the cough, and diminishes the number of whoops; and, in the third, it hastens convalescence in a remarkable manner.

2. Ouabaïne is a drug which does not appear to be cumulative; its administration can be stopped suddenly without any ill effect beyond an exacerbation of the whooping-cough; it can be as suddenly resumed.

3. Ouabaïne should be given, at first at any rate, in doses not larger than $\frac{1}{1000}$ grain every three hours ($\frac{1}{125}$ grain daily).

4. For children under 1 year of age, the dose should not exceed $\frac{1}{2000}$ grain every three hours.

5. In children of from 6 to 12 years of age, if the cough be very violent, and the whoops are numerous, $\frac{1}{100}$ grain may be given in each dose, but the action of the drug must be carefully watched.

6. Ouabaïne may be given alone, dissolved in water, or in combination with bromide of potassium or chloral hydrate. The simplest way is to dissolve one grain of ouabaïne in distilled water, so that each minim of the solution shall be equal to $\frac{1}{1000}$ grain ouabaïne, as,—

℞ Sol. ouabaïne, ♏xlviii;
Syr. aurantii, ʒiv;
Aquæ, ad ℥vi. M.
Sig.—A teaspoonful every three hours.

All the cases under review were treated in the above way.

7. Under the administration of ouabaïne it is found that the temperature, pulse, and respiration are, in uncomplicated cases, slightly below normal. When the drug is pushed, the respiration, as might be expected, becomes very slow indeed; in one patient, aged 4, it was often as low as 16 per minute. It is from this side that danger is to be expected.

An occasional irregularity of the pulse has been noted, and this always occurred in the evening:

	Morning.	Evening.
Average temperature.....	98.4°	97.8°
Average pulse.....	102	96
Average respiration.....	26½	27½

8. Ouabaïne seems to promote the action of the skin. Within a few days—always less than seven, and usually three—of beginning treatment patients are noticed to be perspiring freely, and this is observed to continue so long as the drug is being given. The patient ceases to perspire so freely shortly after the drug is stopped.

9. The movement of the bowels is regular; the average number of motions daily is one and a third. In no single instance was there any of that diarrhœa which is usually so troublesome a feature in whooping-cough.

10. The total amount of urine passed is slightly increased. The amount in each case, of course, varies with the age of the patient. The average daily amount in the whole forty-nine cases was fourteen and a half ounces. The average age of each patient was 4 years 5 months.

It may be noted that in two of the cases under treatment sugar was undoubtedly present in the urine on admission. This began to diminish in quantity, in one instance within three, and in the other within five days, after treatment was commenced; and in the first case on the eighteenth, and in the second on the nineteenth, day of treatment the urine was noted as being free from the slightest trace of sugar. It remained so during the remainder of residence in hospital.

It would be interesting to know whether the same result followed the administration of ouabaïne in diabetes mellitus.

11. Professor Gley points out that 4 drops of a solution of 1 in 1000 produce in a rabbit marked anæsthesia of the cornea, which anæsthesia lasts for about two hours. Dr. Gemmell failed to find this anæsthetic effect produced in any of his patients, although repeated experiments with a solution of the same strength have been made in nearly every case.

12. The appetite improves. This effect is striking, and has been noted in all the patients without exception.

13. The general physical condition improves considerably. This effect also is undoubted, although it is to be regretted that accurate data as to the weight of each patient before and after treatment are wanting.

14. The sleep is sound.

THERAPEUTICS OF INTESTINAL ABSORPTION.

At the Ninth Medical Congress, held recently in Vienna, Dr. Leubuscher read a paper with the above title (*La Médecine Mod-*

erne, May 1, 1890), in which he called attention to the fact that intestinal absorption is a complex phenomenon, and certainly not of a purely physical nature, for the epithelial cells, circulation, and the intestinal nervous system all play important parts in this function. It thus becomes important to recognize the action of different medicinal substances on the functional activity of these different physiological factors in intestinal absorption. With this object in view, Dr. Leubuscher states that he has made a number of experiments, which consisted in ligating a loop of intestine and then injecting a concentrated solution of a mineral acid, so as to destroy the epithelial cells, and then, after carefully washing out the loop, a solution of glucose of a known percentage. He found that this solution was much more slowly absorbed after the action of the acid than before. In order to study the action of the circulatory apparatus in the absorption of different substances, he at one time ligated the arteries, at another the mesenteric veins, of the intestinal loop which had been closed by two ligatures, and found that ligature of the veins seriously interfered with absorption. As regards the influence of the nervous system, he states that he is now occupied on a work in this connection, though he has already made a number of experiments on different remedies which influence absorption in the two ways already studied,—that is, through the epithelial cells and the organs of circulation.

After having ligated in the dog and rat two intestinal loops of equal dimensions, he injected a watery solution of the iodide of potassium or glucose, adding to the injection made into one loop the remedy whose influence on absorption he wished to study. The differences, then, between the quantities of sugar or of the iodide of potassium absorbed from the two loops permitted him to estimate the action of the remedy. By the aid of intestinal fistula, made after the method of Thiry and Vella, he was also able to study the quantity of substances absorbed in a loop of intestine whose mucous surface was of constant, known extent.

The following are the principal results of his researches: Quinine and morphine, even in weak solution, diminish intestinal absorption. Morphine exercises the same action, even when it penetrates into the organism by the hypodermic method. Alcohol in very weak solution (one-half to two per cent.) increases absorption, but it rapidly diminishes it when the solution is made stronger. Glycerin has no action in this respect. Chloride of sodium in small doses increases absorption. Carlsbad water is without influence. Experiments made on man show that the iodide of potassium is eliminated slowly when it has been administered in concentrated alcoholic solution. In the urine the iodide is more rapidly and abundantly eliminated when it is given in a moderate amount of alcohol. In glycerin, water, or milk, the iodide is less rapidly eliminated by the urine.

THE DERMATOLOGICAL VALUE OF SULPHOLEATE OF SODIUM.

Ointments and liniments have been applied to the skin since the earliest days of medicine, and it seems strange that an experience of so many centuries should have produced no change in their composition, for, until quite recently, the base has remained the same,—namely, some animal or vegetable oil or fat. In recent years other bases, such as glycerite of starch, vaseline, and lanolin, have been recommended, and to a certain extent adopted, as substitutes for the time-honored lard, but their advantages have been either slight or offset by some objectionable quality.

Some years ago Dr. George Henry Fox called attention to sulpholeate of sodium, which, while not wholly free from objections, possesses certain properties which render it of great service in the local treatment of skin-diseases, and in the *Journal of Cutaneous and Genito-Urinary Diseases* for May, 1890, he contributes a paper, which is the result of his long-continued experience with this substance.

When sulphuric acid is added slowly to any fixed oil or fat, care being taken to keep the temperature of the mixture below a certain point, a chemical combination is formed, the oleic acid being transformed into what has been called sulpholeic acid.

If sulphuric acid and castor oil, *e.g.*, be mixed in the manner above stated, the result is a thick, viscid, brownish mass, with a strongly acid reaction. The chemical change must take place slowly, and to this end the mixture is kept cool and frequently stirred for about twenty-four hours, or until it is perfectly homogeneous and miscible with water. When the sulpholeic acid thus obtained is combined with an alkaline base, we have a clear, thick, yellowish, semifluid mass of the nature of a liquid soap. Of the various alkalies, soda has been found to be the most serviceable in combination with the

acid, and the preparation of sulpholeate of sodium is, in brief, as follows: To the viscid mass formed by combination of the acid and oil a solution of carbonate of sodium is slowly added under constant stirring and the sulpholeate of sodium is formed. This mixture is allowed to stand for twenty-four hours in a funnel, with stop-cock attached, during which time two distinct layers are gradually formed, the upper one being the sulpholeate of sodium, which is at first held in suspension in the liquid, like cream in cow's milk. This substance has an acrid, bitter taste, and a nearly neutral reaction. Applied to the healthy skin, it has a bland oily or slightly sticky feeling. It contains about thirty per cent. of water, which can be readily separated by evaporation, and the mass then resembles vaseline in appearance and consistency, and makes an excellent basis for ointments.

The value of sulpholeate of sodium, according to Dr. Fox, in the treatment of skin-diseases depends upon the following qualities: 1, its miscibility with water; 2, its rapid absorption by the skin; 3, its remarkable solvent power.

The ease with which anhydrous sulpholeate of sodium can be mixed with water, gives it an advantage over the fatty substances commonly used for application to the skin. It makes, in fact, a soluble ointment,—one which can be washed from the skin as readily as it can be smeared upon it. In cases where it is not desirable to keep an ointment upon the skin both day and night, those made with lard, vaseline, or lanolin as a base are objectionable, since the effort to remove the greasy substance often requires the use of soap and friction, and thereby tends to aggravate an inflammatory eruption. With sulpholeate of sodium as a base, the ointment can be removed from the skin with the greatest of ease by means of a little water or even a moistened rag. In this respect the sulpholeate ointments are unlike any which have been in use, save those made with glycerite of starch as a base.

It is this affinity for water which enables sulpholeate of sodium to sink into the skin more readily than vaseline or fatty substances. In regard to the best basis for ointments, there has been considerable discussion, but, in determining this question, the object to be attained by the use of the ointment must be borne in mind. When a simple protective dressing is required for the surfaces of the skin, as, *e.g.*, in a case of acute eczema of an infant's face, vaseline or its equivalent, the petrolatum of the U. S. Pharmacopœia, will prove of excellent service. But when it is desired to act upon the deeper parts of the skin, or to convey medicinal substances into the blood by means of cutaneous inunction, vaseline is far inferior to lard, lanolin, oleic acid, or the sulpholeate of sodium. The latter substance is largely used in the arts as a solvent and vehicle for dye-stuffs. In the process of wool-dyeing it has been found to be of the greatest service on account of its power of penetrating the keratinic tissues. It is this same property which enables it to sink readily into the epidermis, and renders it of value in the treatment of various chronic skin-diseases.

But the chief recommendation of sulpholeate of sodium is its remarkable power of dissolving certain substances for which we have heretofore had no available solvent. Sulphur, chrysarobin, and other drugs of great value in dermatology, have heretofore been applied to the skin in a finely-triturated but undissolved condition. Such drugs have, therefore, exerted their action solely upon the surface of the skin, except when friction has forced them mechanically into the follicles, where perhaps a certain amount of absorption has taken place. The beneficial effects of these drugs thus applied cannot be disputed, but when we consider that sulpholeate of sodium will dissolve at least two per cent. of sulphur or of chrysarobin, their increased efficacy can readily be imagined. Other substances commonly used for application to the skin are readily dissolved in any desirable quantity.

There are three forms in which sulpholeate of sodium may be advantageously used in the local treatment of skin-disease,—1, as an unguent; 2, as a liniment or liquid application; 3, as a plaster.

As a basis for ointments, the watery element must be removed by evaporation until a suitable consistence is attained. As this process necessarily involves time and trouble, the ointment thus prepared will be more expensive than those made with lard or petrolatum as a basis, and in most cases will possess no corresponding advantage.

As a liniment, employed for the purpose of conveying various medicaments into or through the skin, the hydrated sulpholeate of sodium has proved in Dr. Fox's experience superior to any substance which we now possess. While it sinks into and softens the skin like glycerin, by virtue of its hygroscopic property it has the additional and important ad-

vantage, already mentioned, of dissolving and carrying various substances with it.

Mixed with gelatin in proper proportions and spread thinly upon muslin, sulpholeate of sodium makes a plaster which adheres readily to the skin when moistened, and is superior in many respects to any heretofore used.

Theoretically, the sulpholeate of sodium is a substance of neutral reaction, and perfectly bland when applied to the skin. Practically, it will be found, especially when carelessly made, to contain a little free acid, and may thus produce a slight amount of irritation when applied to a delicate or acutely inflamed skin. Dr. Fox admits that in the treatment of acute infantile eczema, where one might hope for the best results from the use of soluble ointment, he has only met with disappointment, but in the use of all stimulating applications he has found sulpholeate of sodium to be a vehicle of the greatest service.

COCAINE ANÆSTHESIA IN THE IODINE TREATMENT OF HYDROCELE.

The treatment of hydrocele by the injection of iodine occasions an amount of suffering which is sometimes almost insupportable, and, on the discovery of the properties of cocaine, the idea naturally suggested itself of removing the sensibility of the part by the injection of this alkaloid before the injection of the iodine.

In the graduation thesis of Paris, 1889, Dr. R. Spilmann (*Gazette Médicale de Paris*, May 10, 1890), instead of advising the injection of the cocaine after the evacuation of the hydrocele liquid, recommends the introduction of a solution of this alkaloid, by means of a hypodermic syringe, into the sac before the puncture with the trocar is made; so that, therefore, anæsthesia is produced before the puncture, and, of course, before the injection of the iodine. The reason for this procedure is, that if the hydrocele liquid is first evacuated, there is greater possibility of the cocaine injection failing to come in contact with the entire surface of the sac, and, as a consequence, pain may still follow the injection of the irritant; but where introduced into the distended sac, the anæsthetic comes into contact equally with the entire extent of the surface of the sac. He allows twenty minutes or half an hour to elapse between the injection of the cocaine and the tincture of iodine. The strength of the solution is ten per cent., while the author varies the quantity according to the volume and the duration of the hydrocele.

THE INNERVATION OF THE HEART.

According to the Vienna correspondent of the *Lancet* for May 17, 1890, at the recent Ninth German Congress for Internal Medicine some very interesting papers were read in relation to the heart. One by Dr. Romberg, of Leipsic, on the "Innervation of the Heart," attracted special attention, as pointing to another direction in which the investigation may be pursued. Having observed in the heart of a patient who had died from typhoid fever inflammatory lesions around the ventricular nerves and auricular ganglia, Drs. Romberg and His were induced to study the embryology of the cardiac nerves. Sections of the human fœtus were made, and a plastic reproduction of the nerve distribution was obtained by Dr. Born's plate method. The first appearance of cardiac nerves could be detected in the fourth week, when ganglia, detached from the sympathetic chain, migrated into the heart. In the second and third month the deep and superficial aortic plexuses were formed, while the ventricles remained without any ganglia. Therefore the cardiac ganglia must be regarded as offshoots of the sympathetic ganglia, and as the latter belong to the system of the dorsal roots of the spinal cord, the cardiac ganglia are not motor but sensory nerves, and they cannot represent an automatic cardiac centre, as has previously been assumed. This view, based on embryological investigations, is corroborated by well-known physiological observations,—for example, by the fact that the heart of the embryo beats rhythmically long before it possesses nerves or ganglia. The experiments made by Woolridge in this direction were also mentioned by the lecturer. Dr. Romberg believes that the heart-muscle is the automatic motor force of the circulation of the blood without being stimulated for this purpose by the nervous elements. According to this view, the pathological study of the cardiac muscle becomes still more important. In pathology changes, as well as in experimental toxicology, the state of the heart-*muscle* must be taken into consideration. To the cardiac ganglia the lecturer ascribed a reflex influence by which the vagus and accelerator nerves are brought into action. After the lecture, Dr. His, of Leipsic, ex-

hibited very instructive drawings and models of the preparations relating to the innervation of the heart, showing the distribution of the cardiac nerves in the human embryo from the fifth to the eighth week. In the discussion, Professor Basch, of Vienna, pointed to the facts of experimental pathology (muscarine poisoning), which were in favor of Dr. Romberg's view, that the automatic heart-beat is not caused by the action of the cardiac ganglia, but by the automatism of the muscles. Dr. von Frey, of Leipsic, spoke on the relation between the pulse-wave and the closure of the valves. He had made experiments on animals regarding the influence of the closure of the valves on the form of the pulse-wave, and arrived at the conclusion that the configuration of the pulse-wave is varied according to the different parts of the arterial system, and that this variation corresponds to the difference of the distribution and pressure of the blood of the respective parts of the body.

CHLORIDE OF ZINC IN THE TREATMENT OF UTERINE CATARRH.

Many cases of mild uterine catarrh exist, either of the cervix alone or of the cervix and body, which are quite rebellious to ordinary methods of treatment. Such cases are claimed by Dr. Vergely (*Archives of Gynæcology*, May, 1890) to be most satisfactorily treated with chloride of zinc solution. The treatment is commenced eight days after the termination of menstruation, and in the absence of any pain in tissues contiguous to the uterus or ovaries. The vagina and cervix uteri are first irrigated with a hot fifteen per cent. solution of boric acid, combined with a 1–200 solution of sublimate. The uterine cavity is then carefully cleansed of all mucus, and a five per cent. solution of the chloride of zinc applied over the entire surface of the mucous membrane. This operation is repeated two or three times, at intervals of eight days, and a more concentrated solution of the zinc may be used, if indicated. The application is rarely painful, excepting in cases in which there is much congestion or inflammation. In the latter case, the zinc may excite bleeding, which may continue moderately for several hours. Should there be fungosities, or should the ulceration not yield promptly to the zinc treatment, one may employ a solution of chromic acid (1 to 3). The latter gives very little pain, and produces a yellow slough, which falls off in about six days. It may be well to alternate the chromic acid with the zinc. Great care must be used that these solutions are applied only to the diseased tissues, and after their use the tissues should be again irrigated with the boric acid sublimate solution, this being followed by the introduction of a vaginal tampon of cotton, which should be retained twenty-four hours.

ANTISEPSIN OR PARAMONOBROMACETANILIDE.

The experiments made by Dr. Cattani on a number of cases of phthisis, typhoid fever, and pneumonia seem to show that paramonobromacetanilide is endowed with marked antifebrile properties. The remedy, in doses of 7½ grains, produces a reduction in temperature of 2° or 3° C. (*Gazette Médicale de Paris*, April 26, 1890). Unfortunately, however, the antithermic effects are accompanied by a cyanosis, which is even more marked than that which has been observed to follow the administration of antifebrin. The transformation of hæmoglobin of the blood into methæmoglobin, following this cyanosis, makes the use of this remedy as a febrifuge a dangerous procedure.

On the other hand, Cattani has discovered that topical applications of this substance exert a marked antiseptic action, not only facilitating the cicatrization of wounds and ulcers, but also reducing pain at the point of application. In case of hemorrhoids, he has employed it in the form of suppositories, 7½ grains to 45 or 60 grains of cacao-butter, and has obtained excellent results. Of these, he uses two suppositories each day, and found that they prevent suppuration and insure asepsis of the region subjected to this local medication.

GLYCERINUM SAPONATUM.

According to the Vienna correspondent of the *Medical Press and Circular* (April 23, 1890), Dr. Hebra, at the Vienna Dermatological Society, read a paper on the use of saponated glycerin as a vehicle for prescribing medicine, which he highly recommends to the profession. He described this preparation as an alkaline fat obtained in the manufacturing of soap, which is dried, then cut into small pieces, and dissolved in glycerin. This product is again heated and filtered, and allowed to cool, when it forms a soft, yellow, transparent, and somewhat elastic

mass, which is perfectly odorless, melting at body heat, and easily soluble in water. As a basis for ointments, he related a number of cases successfully treated by the preparation, and expressed a hope that his colleagues would give it a favorable consideration.

Dr. Hebra is so confident of the efficacy of this vehicle that he asserts its potency with salicylic acid and creosote to cure that intractable disorder, lupus. His prescription is ninety per cent. of glycerinum saponatum, five per cent. of salicylic acid, and five per cent. of creosote. This will cure lupus without the slightest pain being experienced. He also assures us that there is no other remedy so powerful as a bactericide. This preparation is no less powerful in its curative action in tubercular skin-diseases, as Tyloma lepra, etc. For the rest of the skin-diseases he has different preparations, where glycerinum saponatum is the basis, and all are confidently recommended as efficacious in cutaneous disorders. He admits that he has not exhausted the different combinations with which this vehicle may be administered with as efficacious results.

THE RADICAL CURE OF HYDROCELE BY THE INJECTION OF PURE CARBOLIC ACID.

Surgeons are not yet agreed as to the best method of radical cure of hydrocele, for while some advise incision, or even excision, of the sac, others prefer less radical measures, and especially simple puncture, followed by injection of tincture of iodine.

Dr. Levis, of Philadelphia, in 1872, suggested the replacing of the tincture of iodine by carbolic acid, and his proposition since then has been acted on a great number of times by numerous operators, solutions of carbolic acid being employed in various degrees of concentration or even the pure acid. In the graduation thesis of Paris of 1889, LAMBERT (*Gazette Médicale de Paris*, May 10, 1890) recommends as possessing especial advantages the use of pure crystalline carbolic acid, liquefied either by heat or by the addition of a few drops of water or of glycerin. In the dose of 30 to 45 grains it produces some pain, with a sensation of heat, such as is observed in the employment of the tincture of iodine; the reaction which follows, the author claims, is ordinarily moderate, and the swelling, which is never accompanied by fever, is slight, never reaching the volume of the hydrocele before the operation. Appetite is preserved, and the dissipation of the liquid is rapid and without danger, while the patient is not prevented from attending to his ordinary occupations. Unfortunately, however, this view of the author's is not quite warranted by the facts in the case, since three cases of failure have been reported by Dr. Monod and others. More or less severe accidents from its employment have rendered the use of carbolic acid as an operative procedure now much more seldom employed than formerly, and a measure which, in freedom from danger and success, cannot compare with the injection of iodine after the previous production of anæsthesia through the use of cocaine.

Reviews.

HOW TO PRESERVE HEALTH. By Louis Baskan, M.D. All rights reserved.
New York Exchange Printing Company, 1890.

This is a book on a topic of general interest. The public would except the medical profession, whom they choose to imagine and picture as gloating over the misery and exulting at the sickness of humanity. Yet how mightily the profession has striven in this very cause of hygiene, let all modern discovery, yes, the very science of hygiene itself, bear witness. Who without the doctor would have ever known about drains and bad smells? Who would have imagined but for him that air, earth, and water swarm with deadly organisms, the modern substitutes for the demons of antique theology? Yet, after all this work, we are still held up as alarmists, and as eager to assist rather than destroy the enemies of man, whose name is "legion."

And now, as another proof of the efforts of our noble profession, we have this work on "How to Preserve Health," a work which is but one of many such, and, for all their affected derision, the public takes largely to them, reads them with avidity, and gets as little good from them as possible. But all works on hygiene are not of equal value and authority. Let us see what Dr. Baskan has to say.

Now health and longevity, though often confounded in the uneducated mind, are quite different things, but in one point they agree. A man may live in defiance of some of the laws of health to a great age, and a man may be healthy to whom the principles of hygiene are utterly unknown, but these are the fortunate exceptions. Between those who

will survive anything and those who are bound to succumb to any and everything, there lies the vast multitude who can be saved did they and others realize it, and who practically go down to premature death for want of a helping hand.

These are the poor and overworked. These are the myriad dwellers in unhealthy houses and unsanitary surroundings of every sort. The inhabitants of malarial regions, to whom drainage would prove salvation, these die and give no sign; but besides these the world is left with a multitude of prematurely aged, hopelessly diseased, blind, halt, and maimed, a burden on its hands, which might never have existed had the laws of hygiene been followed. To all such Dr. Baskan appeals. Yet we fear he will appeal in vain, for, after reading his advice, the public, which drinks sewage and glories in it, which laughs at trichinæ and derides microbes, will be only too ready to scoff and jeer, as it realizes the price it would have to pay for prolonged life and unimpaired faculties, and the public has somewhat the best of it in this case. Take the chapter on "Hygiene of the Taste," and realize what it would be to go through life without once forgetting "the little wart-like excrescences which contain the terminal filaments of the gustatory nerve," without ever tasting anything hot or cold, sharp or spicy. From all such agents the tongue, the author tells us, should be "protected," "from burning, irritating, and sharp substances, like tobacco, spices, pickles, and from food and drink either too hot or too cold." How to protect the tongue the author does not tell us. Possibly he has ready to spring upon the public some tongue-protector of which we have no knowledge; but, if not, avoidance must be the only protection.

And to what self-denial will it condemn us. One must eschew "burning kisses," cigars, and pipes. One must be life-long debarred from the profession of "glass-eater," so successfully followed by the late Wm. Jones and others, now no more. But alcohol is left. Hot tea and coffee, iced food and drinks, all these must be avoided. But, guided by the thermometer, we may safely—for all the author has to say—imbibe many cooling and generous beverages. Hygiene is not always a cruel mistress.

But the tongue, unruly though it be, is but one of many members. Let us study the nose and its hygiene. "It should never be picked or bored, nor should foreign bodies be introduced." This, of course, shuts us off from the ministrations of the nasal specialist. Nor should we breathe very cold air, or dusty air, or smoke. Hence we should avoid cities, and even dusty country roads, and live surrounded by grass and flowers. Flowers, alas! they too are interdicted. We, as far as our noses are concerned, may gaze but not smell. "It may happen that an insect is drawn into the nose." However, we can use strong snuff, but moderately, for "excessive use of strong snuff is injurious."

The eye, too, needs care. We should never in a bright light look at "snow-fields, sandy plains, limestone cliffs, bodies of water, walls painted with light colors in oil, polished furniture, or any shining object." Hard cash, jewelry, and diamonds are shining objects. We should never look at them, but go penniless and forlorn, with "blue or colored glasses, and a blue veil and a white parasol with a blue lining." We should frequently close the eyes, or "fix them on objects of a dull color." Nor should we ever read or write by artificial light. In fact, in the day-time we should read only books printed in large Roman type. On days when there are a "few thin clouds over the sun," our very clothes should be hygienic. We should dress like the ancient Greeks and Romans, or the Orientals of to-day, or adopt the "costume of the American mountaineers," whatever that may be. The author here remarks with profundity that "the climate of America is a milder one than we or our ancestors have been accustomed to in Europe," a statement that becomes more profound and perplexing the more it is considered.

In regard to the "Hygiene of Kissing," the author says, "Never allow your child to be kissed on the mouth. . . . Teach him to turn up his cheek." But can the true American child need to turn up an organ so abnormally developed?

Perhaps the real causes for the oft-lamented decay of American oratory are to be sought in the increased care of the vocal organs which education enforces. "The air we inhale passes through the vocal cords." It cannot be prevented very well. But, unfortunately, there are so few good, reliable kinds of air,—cold and hot air, dusty and smoky air, tobacco- and gas-laden air are so common that one hardly knows what to breathe, and "the throat should never be subjected to prolonged exertion in loud singing and speaking."

Under "Health and Morals" we find "people with clear consciences sleep soundly and digest well as a rule." Still more, "a life-in-

surance policy for a good sum, issued by a company of high standing, is the best means" to secure mental quietude, next to a clear conscience; and, in fact, as death draws near, it is a trifle better. When recovery is possible, the policy also acts as a valuable therapeutic agent. All persons who are exposed to "glanders, poison of dead bodies, and that from sausages," should wear rubber gloves. All sorts of protective agents are favorites with our author; and, when it comes to attending the sick, the nurse and doctor are so bundled up in mackintoshes, rubber gloves, and aprons, with the addition of his favorite respirator for all contagious cases, that the spectacle presented by these people, dodging about on the windward side of the bed, lifting the covers on the side away from them, keeping a long distance off, and working a spray apparatus all the time, must, it seems to us, be so ludicrous as to act beneficially on the patient if he possess a true sense of humor, and tend to promote cheerfulness and mirth. No attendant is ever to approach the sick with an empty stomach; and, as our knowledge of physiology has its limits, a nurse in constant attendance must be constantly eating. Every one must have hair and whiskers closely cropped, and be always bathing and disinfecting, so that between eating and bathing, and putting on gloves and respirator, there would be but little time left for other minor duties, such as attending to the sick person and his wants. The medicine is a small matter, and will take little time, for it should be limited to "the smallest possible quantity."

The author believes in the double action of drugs, for, as some patients take more than directed, he says, concerning drugs, "they have in other instances precisely the opposite effect from that intended," and "many substances act in quite a different way when taken in overdoses from what they do when administered according to directions." For all this, clergymen and schoolteachers, where doctors are scarce, are advised to possess themselves of "a certain amount of medical knowledge" and "a small stock of medicine," probably the smaller the better.

But we may be excessively careful about our eyes and ears, nose and mouth, food and morals; we may make guys of ourselves with blue goggles, veils, and parasols; stalk about in Roman togas; live in the remote country, far away from dust and smoke; but, with all our care, accidents may befall us and injure us, if they do not cut us off in the flower of our days, one of the few flowers, by the way, in smelling which we need not dread snuffing up a bug. We may faint,—to select a minor accident,—and the author is ready with his advice,—"he should be placed in a recumbent position." Supposing us to be a female, some uncertainty might arise. "His temples must be bathed with vinegar and ammonia, and his nostrils fumigated with burnt hair and feathers." When he comes out he should drink a "little brandy and water." Now men seldom faint, and we cannot but think, when we consider the veil and parasol, that the author here advises treatment by proxy; and, in the event of a faint occurring in a married or engaged woman, would suggest that the treatment be administered to her husband or lover. We judge this more certainly from the concluding advice. We think the burnt feathers might in many cases be endured if followed by the brandy and water.

But if the faint be not an ordinary one? The subject will probably be male. Here a condition of trance may simulate death, and the attendant has to furbish up his medical knowledge. Here the author is at his best. Are the cornea and conjunctiva dry and wrinkled? The case looks dubious, but "dip a cloth in caustic ammonia and rub the skin till the epidermis is removed." Whether entirely removed or only partially we are not told. But the author is generally thorough. Listen to his heart. If its sounds are doubtful, thrust a fine aspirating-needle between the fifth and sixth ribs into the heart-muscle, "an experiment attended with no danger when the needle is not inserted too deeply," and watch the quivering of the projecting part of the needle. When it ceases to quiver, the man is dead. But "the surest test for a layman is decomposition, which begins with a bad odor and green spots upon the skin." Then the layman knows the physician has been already quite satisfied with his little needle experiment, but the layman had better sit down quietly and watch for green spots.

The treatment of a person apparently dead "should be begun by freeing him from ribbons about the neck, noxious gases, and water in the air-passages in the case of those nearly drowned." The ribbons are very important. Most men wear them,—pink ribbons, with a green stripe in the middle. This accomplished, he should be placed in a room filled with fresh air, his clothing removed cautiously

but quickly, and an effort made to restore him by warm applications, baths, washings with vinegar, rubbing, tickling the mouth and nose, using ammonia, dropping naphtha and oil of mustard on the præcordia, and, after valuable time is thus wasted, artificial respiration, the most practical method of doing which is the method, the author tells us, of Marshall Hall, but, in speaking of Sylvester's method, he terms it the best.

"Upon the revival of the patient, the efforts for his restoration should be remitted at times." This is a valuable hint, for recovery would be but a doubtful blessing were either method to be forever after kept up.

We hesitate to go further. Enough of the author's work has been investigated to show how thoroughly he has entered into the spirit of hygiene. Doubtless, we should all live longer and preserve our faculties better were we to follow his advice, but one may pay too high a price for a really excellent article, and self-preservation is not the highest virtue at all times and under all circumstances.

E. W. W.

MONTHLY NURSING. By A. Worcester, A.M., M.D. Second edition.
New York: D. Appleton & Co., 1890.

Probably a thoroughly acute, energetic, and capable woman, when about to engage in the occupation of a monthly nurse, will, if possible, endeavor to obtain practical training in some institution where classes are taught. But many things may stand in her way. In our large cities a nurse without a good diploma finds herself left out in the cold, unless her reputation has been already established before the present era of trained nurses. Even with influential friends in the profession her success is slow and uncertain; but in the smaller towns, what few of them are not yet medical centres, it is yet possible for a self-trained nurse to succeed. She needs, to start with, good intellectual capacity, handiness, quickness of mind, and a good constitution, and these, supplemented by self-teaching, may result in a very good, useful nurse. Of course, before she has had much actual experience, she may make mistakes, but with such a one every case will tell, and she may hope in almost any community to obtain from one or more of the physicians in her neighborhood help over hard places if she displays ability and modesty. The great error of the self-taught is by no means self-depreciation. Far otherwise. And one great lesson of the training-school is to show her when to be dependent and when independent. Books she must have, and good ones; but of these there is no lack. Every department of nursing has its primers and guide-books. Most of them are good. The one before us, devoted to monthly nursing, is above the average. It does not teach too much. The author wisely says, "In the science of obstetrics and in the common text-books there is much that nurses never need know." How many writers of these manuals for nurses have taken this fact to heart? and, alas! how many have not? The author goes quite far enough. His nurse will know how to extract a fastened placenta, and do many other things, which, though generally in the province of the physician, may, on emergency, fall to the nurse. And, above all, a careful study of Dr. Worcester's book will make her more useful in keeping her patient out of trouble than ready in extricating her from it. The book is peculiarly strong in the hygiene of the lying-in room. A short treatise on cookery for the sick is appended, which seems sensible, and will prove useful.

E. W. W.

A GUIDE TO THE DISEASES OF CHILDREN. By James Frederic Goodhart, M.D., F.R.C.P., etc. Rearranged, revised, and edited by Louis Starr, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, Physician to the Children's Hospital, Philadelphia, etc. Second American from third English edition, with numerous formulæ and other illustrations.
Philadelphia: P. Blakiston, Son & Co., 1889.

We have already noticed in this journal the first American edition. All that was then said in commendation of the original work and of the editor's efforts for its further improvement we might repeat even more forcibly. Dr. Goodhart's book is, for its size, the most complete, useful, and original book on the subject that we know of. The omission of the brackets around the editor's additions and suggestions, which the editor considers an advantage, seems to us at best a doubtful one. There is now some uncertainty as to what the author says and what the editor says. One becomes slightly mixed. Still, a careful reading often clears the matter up. The editor's additions on the topic of infant-feeding are so excellent that one is disposed to resent the possibility of their being mistaken for the author's rather than the editor's work.

E. W. W.

Correspondence.

PARIS.

(From our Special Correspondent.)

A Fierce Battle about Kola and Kola-Red—Physiological Effects of Potassium Ferrocyanide—Leprosy is Contagious — Goat Vaccine — Glanders Inoculable through the Healthy Skin—The Arthritis Microbe.

Kola nut has been the object of a protracted and rather acrimonious discussion before the Academy of Medicine. Dr. Heckel, of Marseilles, and Dr. Germain Sée, of this city, were the principal debaters in a controversy which lasted over several sittings, and while the sturdy champions exchanged several hard knocks in the way of *ad hominem* arguments, not usual in the learned assembly, interesting information respecting the properties of kola nut was elicited. One of the points at issue was the priority of discovering the drug's special properties as a moderator of tissue-waste. Dr. Heckel claimed he was the first to introduce kola-nut biscuits as a help to foot soldiers and Alpine climbers, when long marches and much fatigue are to be endured. He insisted upon the fact that kola, although containing about the same proportion of caffeine as coffee, is much more active and will produce different effects. The first complete analysis of kola was published in 1884 by Professor Schlagdenhauffen, of Nancy, and Dr. Heckel, and showed the seed to contain 2.32 per cent. of caffeine, .23 of theobromine, 1.59 of tannin, 1.29 of kola-red, 6.76 of proteic matters, and 33 of starch. Although the true nature of kola-red has not been ascertained, it plays a most important part in the physiological effects of the drug. Unfortunately, owing to the indefinite character of the principle, army physicians were opposed to the substitution of kola for coffee in the rations of soldiers having to undergo unusual physical wear and tear. The opposition was all the more to be regretted that in the German army, although an inferior sort of kola, procured from England, is employed, kola biscuits have been successfully introduced, while in civil life Alpine tourists have found them of great advantage in their excursions. Hence the Academy was appealed to, so that the importance and value of kola be better appreciated, and the prejudice against it as a strategic aliment be removed. Dr. Germain Sée replied that, since Dr. Heckel owns to his ignorance of kola-red's true nature, the value of so hypothetical a principle may as well be set aside, and one is justified in sticking to the prevailing opinion that kola nut has no other properties than such as belong to the caffeine and theobromine therein contained. And even theobromine should be considered of doubtful value, as it is not itself a very definite principle. Finally, Dr. Heckel's opinion cannot be accepted, since "Dr. Colin, of the army and himself (Dr. Germain Sée) consider coffee for the present preferable to all similar products." It will, no doubt, strike the reader that because kola-red is not a definite principle, and some physicians prefer coffee, it does not follow that kola is worthless. The drug should be judged on its merits and not on theories. Cinchona cured fevers before quinine was known, and kept on curing them, in spite of Raspail and others, who declared quinine to be rank poison. And even now digitalis leaves will produce therapeutical effects, which cannot be had from either digitaline, digitaleine, or digitoxine, and chemists freely confess their inability to discover the true active principle or principles of digitalis. Dr. Heckel hinted about as much in his retort, but soon the debate took a decidedly personal turn. Some sneering allusion having been made to the circumstance that the kola preparations were introduced on a commercial scale, Dr. Heckel replied that every one in Marseilles knows—his friends especially do but too well, who lent him financial support—that his experiments have been very expensive and unremunerative. "Others," he said, "more skilful or more fortunate, have been successful pecuniarily with similar matters, while I only spent much money. At the same time I am perfectly certain Dr. Sée, whose scientific disinterestedness is universally known, would have acted as I did myself." The double-edged compliment brought a smile to the faces of all present, who know full well the unsavory job about antipyrin. Yet Dr. Germain Sée was bound to have the last word. "Dr. Heckel," he said, in substance, "claims kola-red to be the main principle of the drug, and more important than caffeine. But no one ever heard of his experiments to prove the fact. I am aware he has the intention to free his preparations from a certain aphrodisiac essential oil, the delight of Guinea negroes, but a great inconvenience to our bachelor soldiers. Yet he has never separated out the caffeine to ascertain the value of kola-red by itself. As to his claim of priority in dis-

covering the advantage of caffeine as preventing tissue-waste, I shall call attention to my investigations with Drs. Lapicque, Parisot, and others, which show the tissue-saving theory to be contradicted by all physiological laws of nutrition. Caffeine will not replace aliments, but only the excitation caused by aliments, and this is all. If he still persists in the hypothesis, I leave to him, without regret, the merit of it for what it is worth." Amidst all the rather amusing special pleading, several interesting facts remain,—namely, the probable virtues of kola-red, the existence of an aphrodisiac essential oil in the nut, and the claim that the French get the best kola nuts produced from their African possessions. All thought kola exhausted, when, at the May 20 academical sitting, Dr. Dujardin-Beaumetz reopened the subject, to soon conclude it, however, as it were. He said that in 1884, having with Dr. Monnet examined the drug's therapeutical virtues, they found it to possess marked diuretic properties, evidently due to the constituents caffeine and theobromine, and astringent virtues referable to the large percentage of tannin. But they observed also manifest tonic properties, which are quite distinct, and may possibly be attributed to the kola-red noticed by Dr. Heckel. For the present, however, in the absence of decisive experiments, it would be idle to further argument on mere hypothesis. A wise remark, which, it is hoped, will end a useless discussion.

No little difference of opinion existing as to the therapeutic value of potassium ferrocyanide, Drs. Combemale and Dubiquet, of Lille, have instituted a series of experiments on animals, to ascertain the physiological properties of the compound, and reported the results to the Paris Society of Biology. The salt was administered by the mouth, dissolved in distilled water, and in doses varying from .08 gramme (1¼ grains) to 2 grammes (30 grains) per kilo (35 ounces) body-weight, to six dogs and six guinea-pigs. The effects, as gathered from eighteen experiments, were found quite different with the different sorts of animals. On dogs the ferrocyanide, in doses of from 60 centigrammes (9 grains) to 2 grammes per kilo of body-weight, generally caused vomitings, no matter whether the solution was concentrated or diluted, and occasionally diarrhœa and bloody passages. More seldom still, both purging and vomiting occurred, but never could diuresis be obtained. In vain the doses and dilution were varied. The quantity of urine never increases, but, on the contrary, grew less in two instances. With the guinea-pig the case was altogether different, diuretic action being most manifest. No matter what were the doses given,—from 25 centigrammes (4 grains) to 1.50 grammes (24 grains) uniformly dissolved in 25 c.c. of water,—constant polyuresis was observed. On the other hand, no purging or irritating action was noticed. The next interesting point being to determine the form of elimination, the urines were examined. They were found, two hours after administration, to contain both ferrocyanide and ferridcyanide of potassium, and later, or after small doses, ferridcyanide exclusively. The same compound could be detected as long as twenty hours after the dose. From these observations it seems probable that the molecule of ferrocyanide in the economy condenses into ferridcyanide, and, thus losing two atoms of potassium, operates as a diuretic on animals which, like guinea-pigs, cannot vomit. The Lille scientists concluded as follows: 1. Potassium ferrocyanide is not poisonous for animals, even in doses of 2 grammes per kilo of body-weight. 2. It is not a diuretic for the dog, but is for the guinea-pig. 3. It is in the economy transformed into ferridcyanide, and eliminated as such, when the dose remains within certain limits. 4. The diuretic action appears to be owing to the potassium set free when the ferrocyanide molecule condenses into ferridcyanide.

Whether leprosy is contagious is a fact still denied by many. But the weight of evidence continually accumulating tends to prove that the disease is a communicable one. A clear case has been reported by Dr. Forné, a navy physician attached to the colonial service. While in the penal colony of New Caledonia, he observed that leprosy, hitherto confined to native Kanakas, was beginning to spread among the white race. On December 20, 1889, there were four Europeans, all convicts or ex-convicts, infected with the disease. The most characteristic instance is the following: X., a Belgian by birth, was, in 1874, at the age of 31, sentenced in France to five years' hard labor, and transported to New Caledonia. In 1879, at the expiration of his time, he chose to remain in the colony; but it was only in 1881 that he took up his residence near a native tribe, strongly affected with leprosy, and had with them close and constant relations. In 1885 the first lesions appeared, and soon spread over various parts of the body. The doc-

tor, in 1889, saw the patient suffering from numerous bullæ and ulcers, leaving no doubt as to the nature of the affection, and the less so that in a parcel of the ear-lobe, excised with the patient's consent, quantities of Hansen's bacilli were found swarming all through the tissue. The diagnosis was leprosy of a mixed anæsthesic and tuberculous character. The case was undoubtedly one of contagion, as the man, being a native of a country where leprosy has been for centuries unknown, cannot be said to have inherited from his parents any germs of the disease which overtook him afterwards.

Dr. Hervieux, of the Academy of Medicine vaccination committee, has recommended goat vaccine, not as a substitute but as an alternative for bovine virus. From his researches it appears that the idea is not a new one, since caprine virus was prescribed in 1803 by an ordinance of the king of Spain. But recent experiments have shown goat vaccine to be, on an average, about as reliable as the one usually employed, both in the lymph and the pulp state. Dr. Hervieux, who is a very careful and fair-minded man, has found the new vaccine process to present the following advantages and disadvantages: To begin with the first, while the goat offers equal security against syphilitic contagion, it is, unlike the cow, completely tuberculosis-proof, an important point. Besides, goats are cleaner, more manageable, and less expensive than cows. When a heifer has to be inoculated, no less than three men are needed to help the operator; with a goat, one is enough. Moreover, the hire and keep of the smaller animal will cost a great deal less. On the other hand, there are objections against nanny, the chief being that but few of her kind are bred as compared to cows. Now that human virus is more and more rejected, it would be easy, in case of a smallpox epidemic, to procure at once almost any number of heifers to raise virus, while goats would be altogether insufficient, the more so that, owing to different size and anatomical shape, it takes from four to five goats to produce as much virus as one heifer. Thus it would be out of the question to recommend the exclusive use of goat vaccine, but for the reasons given, especially the certainty of avoiding tuberculosis, the virus in many cases is one that should not be neglected.

To speak of another sort of inoculation, quite different in character though, transferred from animal to man, glanders have been proved by Dr. Nocard to be communicable by simple contact with the skin. He has succeeded by anointments on the unbroken skin with glander discharge, to inoculate the disease to two guinea-pigs out of fifteen. A microscopical examination showed the bacilli to have penetrated the healthy skin through the hair-follicles to the lymphatic cells.

And, finally, while in the microbian kingdom, a work of Dr. Th. Guyot should be noticed. It is a good-sized book on arthritis, in which he has expounded the theory that the affection may be caused by a microbe. Although the bacillus has not been isolated, he contends all the lesions and symptoms are such as to render the theory, if not certain, at least most probable. His main object in publishing the work in question has been to call the attention of other observers to the question, so as to compare and complete experiments.

PARIS, May 21, 1890.

BERLIN.

(From our Special Correspondent.)

Scarcely had the members of the Medical Congress returned home from their trip on the blue Danube than they found already awaiting them the prospective pleasures of several important conventions here in their native land. Of these gatherings the one attracting most attention is that of the German physicians, because it is to be made busy with social festivities and preparations for the session of the Chamber of Physicians. The election to the membership of the latter has yet to take place this year, and the fight will be a hard one. Moreover, the sixteenth session of the German Congress of Public Hygiene occurs in September in Braunschweig, shortly before the meeting of the Society of German Naturalists and Physicians in Bremen. The International Medical Congress, which is to meet in Berlin about the 1st of August, has been for some time putting into commotion all the medical circles in Germany, especially in Berlin. A committee has been chosen to provide temporary quarters for the visiting physicians; furthermore, the committee of arrangements has been working with the greatest diligence to get everything into perfect readiness, so that the whole time during the Congress may be taken up with important matters. Virchow has just returned a few days ago from his Eastern tour, and, as such an event is always of vast interest to medical cir-

cles in Berlin, I feel that the work will now be carried on with renewed energy, as only two and a half months remain before our guests from all quarters of the globe will be with us. Since many medical corporations and the state, as well as the city and the organization committee, will propound difficult questions to the participants in the Congress, it is to be earnestly hoped that the visitors may succeed in getting a good picture of the life and vim of medical Germany.

In regard to the changes in the faculties of the German universities, we have to state that Instructor Hans Leo, who was hitherto an assistant of Professor Senator in the University Polyclinic, has been called to Bonn as special professor, to fill the chair made vacant by the resignation of Professor Friedrich Mueller, who, though but recently appointed assistant to Professor Gehardt, of Berlin, has lately been elected director of the Medical Polyclinic at Breslau. In the latter place Instructor Partsch has been elected special professor in the faculty of medicine.

In the last session of the Berlin Medical Society the communications from some speakers aroused considerable interest. Professor Gluck showed a female patient from whose right inguinal region he had removed a carcinoma about the size of one's fist. The wound healed under antiseptic precautions; the patient is now feeling perfectly well, able to work, and the function of the limb is preserved. Over six months have elapsed since the operation, and such results are seldom met with. During the operation several difficulties had to be overcome. The saphenous vein had to be tied close to its entrance into the common femoral, which was secured with a silk ligature, and healed without the entrance of any thrombi. Moreover, large pieces of flesh had to be removed from the pectineus and adductor muscles. (It is to be earnestly hoped that the patient will long survive this operation, and will continue to demonstrate the curability of cancer by radical operation.)

Professor Franckel showed a specimen that he had removed from a woman 27 years of age. A hard, osseous tumor had closed the right nostril entirely and protruded from the canal. Upon opening this with a chisel a quantity of pus was discovered and removed, after which a bony cavity, lined with a thin film of mucous membrane, could be seen. This shell of bone was fragile and easily taken out. The sac or pocket protruded from the nasal septum. The power of control over the cavity of the nares had been gone for months. The growth had been nourished by this large collection of pus.

In the same way Zeller showed some quite interesting specimens from the collection of Professor Sonnenburg. These were preputial calculi taken from a man 45 years old. He had been married twelve years, and previous to this time had had cystitis with a stricture of the urethra, when a stone had been passed during micturition. The existing phymosis was operated upon by circumcision and several stones removed, the largest of which weighed eight and one-tenth grains. They were composed of carbonates of the alkalies, triple phosphates, and calcium carbonate, and are to be considered true urinary calculi. (How he could have performed his marital relations it is hard to imagine.)

Professor Schoeller read an essay on the subject of the operative treatment for cataract by means of iodine injections,—a subject upon which the doctor had already spoken some time ago. He had treated in all twenty cases by this method. From the patients recently operated upon, two are to be excepted, because in them a trial was made of the salicylate of sodium 1 : 3, and in addition to these there are three others in the treatment of whom the operator resorted to the use of the solution of the iodide of potassium, recommended by Abbadie. Three cases in which the injection of the iodide had been tried, failed on account of hemorrhage. In three cases in which the disease had existed for years, and in which complications were present, there were opportunities offered for only a partial application of the method. Still it succeeded in broadening the field of vision in these patients, and in one case markedly to improve the acuity of the sight. Sometimes the operation did less good or none at all. In fifteen patients the cataract returned in every instance; but in seven of them it was not so much the second time in the field of direct vision. The reason of this failure is to be found in the too feeble reaction of the organ upon the injection, on account of which the bathing of the crystalline lens was not perfectly performed. Eight cases are to be reported as having healed very satisfactorily, although in three of them some imperfections were left behind, which, however, did not destroy the power of vision. Moreover, other physicians who have since tried similar experiments have obtained good results. Still these results are not constant, and some of

them, at least, are to be improved upon, such as the reaction of the organ upon the injection of the tincture of iodine which is not constant, but varies in its intensity, being at one time too strong and at another time too weak. Any injury to the posterior capsule of the lens is to be carefully avoided. Professor Schweigger, who has treated ten cases by this method and arrived at no result, is at present opposed to its use.

Finally, Professor Jul. Wolff spoke in glowing terms of the operation for cleft palate, which he is now in the habit of performing by means of silken sutures following the bend of the pharyngeo-palatal muscles, and without stretching the throat. In ten cases he reported perfectly smooth union, and that, too, better than by the old method. With the present patient, in whom there existed a widely-separated division in the palate on the left side, the velum palati was secured posteriorly by means of a suture, and in this way an artistically pleasing as well as functionally perfect result was obtained.

In the Congress for Nervous Diseases the treatment by suspension for tabes dorsalis was not mentioned with praise. The speaker, G. Rosenbaum, spoke of the results that had been obtained by Professor Mendel in the latter's treatment by suspension of this and other nervous diseases in the Polyclinic. The various symptoms were markedly improved in quite a number of cases, especially those of the fleeting pains, ataxia, and the Romberg reflex movements. The symptoms connected with the bladder and rectum improved, it is true; but this improvement lasted only for a short while. The ocular symptoms were also ameliorated, and pronouncedly so. In myelitis suspension showed no results, and is never to be tried by the patient alone without skilled medical attention. Patients often make a mistake in this regard, particularly as no special skill seems necessary for the successful carrying out of this method, and it is to this that we must refer the unfortunate or serious results that are disseminated through medical literature as arising from this mode of treatment, for all the speakers agreed that with satisfactory precautions and under medical attention this method of treatment is free from danger. The younger patients were more amenable to the treatment than the older ones. Probably this depended upon the fact that in the latter the adhesions, resulting from previous attacks of lepto- and pachy-meningitis, were torn asunder. At any rate, experience proves a hyperæmia of the parts concerned, and, therefore, a marked improvement in the various symptoms. As these patients were in the hands and power of the physician, no other treatment but that of suspension was tried. It is worth while to mention also their final conclusion in regard to this as well as to the other methods of treatment for tabes dorsalis, which was that it will always be impossible to treat satisfactorily all the various symptoms of this disease, which requires so much patience on the part of both the sufferer and physician, as well as extreme care and the purchasing of costly apparatus. The suggestion of it, however, exerts a great benefit over the minds of the patients, who, having grown hopeless in regard to their condition, become acquainted with a prospective balm for their woes, and willingly submit to the new treatment. In the debate all the speakers finally agreed that the treatment by suspension does not have any influence upon the organic process of the disease as such, and should not be resorted to with that idea. Moreover, that medical treatment is always to be used together with the suspension.

Contrary to the above experience, P. Guttmann has seen good effects following suspension in myelitis. He also treated patients with *lithiasis* by means of constant doses of antipyrin, both hypodermically and by the mouth, and completely cured them. Thus experience promises no more and no less by the treatment of tabes by suspension than it does by some of the other well known methods. Remak drew attention to the remarkably fickle course of tabes, which will sometimes get better without our attention, and at other times will seem to defy all our efforts towards its improvement. Leyden expressed himself as being wholly negative in regard to the subject to the matter under discussion. Mendel remarked that the common symptoms of tabes—viz., immobility of the pupil and lack of patella reflex—were not favorably influenced by the treatment; still, he advised trying it under necessary precautions and in suitable cases, as it was possible to ameliorate thereby, at least, some of the symptoms of the worn-out patients.

Notes and Queries.

ANY one interested in the sick-benefit, funeral-aid, and death-beneficiary associations of the United States can help make the statistics of their organizations for the

forthcoming census more complete and disseminate the knowledge of the good work they are doing by sending the names of such societies as they may know of, and the addresses of their principal officers, to MR. CHARLES A. JENNEY, Special Agent of the Eleventh Census, 58 William Street, New York City.

"CENSUS OF HALLUCINATIONS."

To the Editor of the THERAPEUTIC GAZETTE:

DEAR SIR:—May I ask for the publicity of your pages to aid me in procuring co-operation in a scientific investigation for which I am responsible? I refer to the "Census of Hallucinations," which was begun several years ago by the Society for Psychical Research, and of which the International Congress of Experimental Psychology at Paris last summer assumed the future responsibility, naming a committee in each country to carry on the work.

The object of the inquiry is twofold,—first, to get a mass of facts about hallucinations, which may serve as a basis for a scientific study of these phenomena; and, second, to ascertain approximately the *proportion of persons* who have had such experiences. Until the average frequency of hallucinations in the community is known, it can never be decided whether the so-called "veridical" hallucinations (visions or other "warnings" of the death, etc., of people at a distance), which are so frequently reported, are accidental coincidences or something more.

Some eight thousand or more persons in England, France, and the United States have already returned answers to the question which heads the census sheets, and which runs as follows:

"*Have you ever, when completely awake, had a vivid impression of seeing or being touched by a living being or inanimate object, or of hearing a voice, which impression, so far as you could discover, was not due to any external physical cause?*"

The Congress hopes that at its next meeting in England, in 1892, as many as fifty thousand answers may have been collected. It is obvious that for the purely statistical inquiry *the answer "No" is as important as the answer "Yes."*

I have been appointed to superintend the census in America, and I most earnestly bespeak the co-operation of any among your readers who may be actively interested in the subject. It is clear that very many volunteer canvassers will be needed to secure success. Each census blank contains instructions to the collector and places for twenty-five names, and special blanks for the "Yes" cases are furnished in addition. I shall be most happy to supply these blanks to any one who will be good enough to make application for them to

Yours truly,

PROFESSOR WILLIAM JAMES.

HARVARD UNIVERSITY, CAMBRIDGE, MASS.

THE TREATMENT OF WHOOPING-COUGH BY INHALATION OF SULPHUROUS ACID.

In the *Bulletin Général de Thérapeutique*, April, 1890, DR. WEISGERBER reports three cases of marked whooping-cough, which he treated by burning daily, in the morning and evening, one hundred and fifty grains of powdered sulphur, and subjecting the children for an hour, in the morning and evening, to the action of the sulphurous-acid fumes. The gases emanating from this amount of sulphur in a room about eighteen yards square are not sufficiently concentrated to produce any serious annoyance other than slight irritation in the nose and throat, and he has succeeded, as in other instances already alluded to in the GAZETTE, in producing most marked relief following the very first treatment.

A NEW REMEDY FOR HAY FEVER.

Regularly as the summer comes round, with its flowers and sweet-scented grasses, and the fatal *amari aliquid* which rises from these well-springs of odorous delight to vex the nostrils of the victims of hay fever, there is a corresponding efflorescence in the medical journals of more or less dainty therapeutical devices to rob the pollen of its sting. Many means of lessening the abnormal irritability of the conjunctiva and respiratory mucous membrane have been tried, and for the most part have been found wanting, and sufferers to whom experience has brought "disillusion" are fain to throw physic to the dogs and take refuge on barren mountain-tops till autumn brings surcease of sorrow. It is not every one, however, as the old proverb tells us, that can go to Corinth, and, moreover, those subject to hay fever are as eager as the Athenians of old to hear some new thing that may perchance mitigate, if not

cure, their complaint. Some of our readers, therefore, may be glad to have their attention called to a method of treatment which seems to have at least the merit of novelty. Dr. de Lamallerée, who looks upon the disease as a "neurosis of nasal origin," the exciting cause of which is "erection" of the mucous membrane set up by some irritant substance, says he has succeeded in subduing the morbid sensitiveness of the parts by means of douches of carbonic-acid-gas applied to the interior of the nose, at least three times a day, for a quarter of an hour at a time. In severe cases this local medication is insufficient, and the gas must be given by the rectum, in 6-litre doses, morning and evening. Dr. de Lamallerée states that he has "passed into the intestine in less than ten minutes from 10 to 14 litres of carbonic acid gas without the patient feeling the slightest colic or distention." No other treatment whatever is used. It must be confessed that though Dr. Lamallerée speaks of this remarkable plan with all the enthusiasm of a discoverer, its results, even on his own showing, do not seem to be particularly brilliant, and it is just possible that many persons might think the remedy worse than the disease.—*British Medical Journal*, May 10, 1890.

USES OF COCAINE IN SURGERY.

The graduation thesis of Dr. J. Bouchet in Paris, published in the *Gazette Médicale de Paris*, May 10, 1890, deals with the uses of cocaine in operative surgery. He calls attention to the number of different usages, which have been frequently described, but which it may be worth while to recapitulate. When combined with chloroform inhalation, in order to produce general narcosis, it facilitates the subsequent awakening and moderates reaction. Injected between the alveolus and the tooth it suppresses pain in the extraction of the latter. It reduces suffering in otitis and obliteration of nasal polypi, while locally employed it affords great relief in angina and cystitis. It facilitates dilatation of the urethra in cases of stricture, and injected into the bladder or into the urethra in gonorrhœa greatly relieves pain; further urethral injections of cocaine facilitate the passing of the catheter and dilatation of the canal, while under its influence lithotripsy may be performed under the most favorable conditions. Cocaine has also been used in the treatment of hydrocele to suppress the pain which follows injections of iodine and in the operative cure of phimosis and paraphimosis.

Finally, its use permits of the cure of vaginismus, while its employment in ophthalmic surgery is of inestimable value, where the contraindications to its employment are almost confined to the existence of glaucoma. On the other hand, all these advantages are somewhat detracted from by the fact that cocaine, even in moderate doses, is sometimes poisonous, and it is thus necessary to test in advance the susceptibility of the patient by giving gradually-increasing doses, and to watch with the greatest care all subjects affected with cardiac or nervous diseases.

TO PREVENT DISCOLORATION IN BRUISES.

To prevent the blood from settling under a bruise, there is nothing to compare with the tincture or a strong infusion of capsicum annuum mixed with an equal bulk of mucilage of gum-arabic, and with the addition of a few drops of glycerin. This should be painted all over the surface with a camel's-hair pencil and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as the injury is inflicted, this treatment will invariably prevent the blackening of the bruised tissue. The same remedy has no equal in rheumatic stiff neck.—*St. Louis Polyclinic.*

ETHOXYCAFFEINE.

Ethoxycaffeine, which some time since was strongly recommended, in doses of .25 gramme (4 grains), as a remedy for migraine, can, according to Dr. Thoms, be readily prepared by treating caffeine with large excess of bromine, added gradually in small quantities, the mixture being kept cool, and then adding to an alcoholic solution of the resulting monobromcaffeine, freed from excess of bromine, metallic sodium in small fragments sufficient to combine with the bromine, and boiling. Upon concentration of the alcoholic solution the ethoxycaffeine separates in small white needles, that can be purified by recrystallization from alcohol or water (*Pharmaceutische Post*, April 13, p. 309). The melting-point of the crystals is 138° C., and Dr. Thoms recommends this as a means of distinguishing it from the much lower-priced caffeine, with which it might be adulterated. Another point

of difference is the behavior of the two bases towards caustic potash or soda solution. A solution of .1 gramme (1½ grains) of caffeine in 50 c.c. (1⅔ ounces) of boiling water is not rendered turbid upon the addition of potash solution, while from a similar solution of ethoxycaffeine the compound is almost completely precipitated.—*Pharmaceutical Journal and Transactions*, May 3, 1890.

RESORCIN FOR RODENT ULCER.

Dr. Chas. Szadek, in the *Satellite*, recommends resorcin for various forms of skin-diseases, particularly condyloma and verrucæ, in the form of ointment and powder. He reports a case of cure of rodent ulcer by using an ointment of resorcin and vaseline (twenty-five per cent.).

No organizations in the United States have multiplied more rapidly in the past ten years than the sick-benefit, funeral-aid, death-benefit, and other kindred societies.

As they are generally confined to those who are in the humbler walks of life, the good they have done is incalculable, carrying substantial aid to thousands of stricken families, and inspiring those who are fortunate enough in being members with a courage which might not exist in their hearts without them.

The members of these organizations will be glad to learn that Hon. Robert P. Porter, Superintendent of the Eleventh Census, will endeavor to secure the statistics of the noble work these associations are doing, and it is safe to say that no other branch of the census will be more interesting.

The business of gathering the data has be enplaced in charge of Mr. Charles A. Jenney, special agent of the insurance division, 58 William Street, New York City, and all associations throughout the United States, whether incorporated or private, should assist by sending to him the address of their principal officers.

THE EFFECTS OF ALKALIES ON ASSIMILATION.

At the Ninth Congress of Internal Medicine at Vienna (*British Medical Journal*, May 3, 1890) Dr. E. Stadelmann, of Dorpat, related experiments made to determine whether large doses of alkalies had a bad effect on assimilation. The alkalies were administered (1) in very large doses and (2) for long periods. The experiments were conducted on the experimenters themselves, as conclusions drawn from experiments on animals were sometimes misleading. The carbonate, bicarbonate, and citrate of sodium were used. Almost all the normal constituents of the urine and the nitrogen of the fæces were taken into account. The quantities of uric acid and ammonia in the urine were diminished after the administration of the alkalies; the secretion of ammonia could not, however, be altogether suppressed. The urea presented the most interesting anomalies. In one of the experimenters the secretion of urea first became diminished, nitrogen was formed, but later on the conditions changed, and the amount of the daily secretion of urea varied greatly, on one occasion being subnormal and on another supernormal. The average quantity, however, did not deviate from the average normal standard. The nitrogen in the fæces increased, and was occasionally double the normal amount. No diuretic effect was noted. Increased oxidation of fat and augmented consumption of the fat of the body after the use of alkalies were very probable. Lime and magnesia were not changed by alkalies with reference to their secretion through the urine, and the same was true of phosphoric and sulphuric acids, which became rather diminished in quantity after the use of alkalies, this being a point worth particular attention. The experimenters thus succeeded in depriving the body of a part of its alkalies by the introduction of acids, but they did not succeed in withdrawing inorganic acids from the body by the introduction of alkalies. The carbonate of sodium was less well absorbed than the citrate. The difference in the absorption of these two compounds also proved that the citrate of sodium was not transformed into the carbonate of sodium until it reached the blood, and not in the intestines, as stated by Buchheim. It was most improbable that the citrate of sodium itself was excreted. No digestive disturbances whatever, nor any injurious effect on the general condition could be observed, even after doses of 430 grammes of the citrate of sodium, or a total amount of 600 grammes during the whole period of experimentation. The use of organic salts thus appeared to be much more convenient than the carbonates, when it is desired, so to say, to alkalinize the body. They found that a considerable portion of the citrate of sodium must have been elimi-

nated in the urine in the form of the carbonate of sodium. Further experiments were made by Drs. Nissen and Mandelstamm, as to the influence of alkalies on the secretion of bile. The experiments certainly proved that neither water, cold or warm, in large or in small quantities, nor the alkalies, increased the bilious secretion. Small doses of alkalies (Carlsbad salt), bicarbonate of sodium, sulphate of sodium, phosphate of sodium, acetate of potassium, tartrate of potassium, citrate of potassium, carbonate of potassium, etc., did not influence the quantity and composition of bile at all, whereas large doses of the same diminished the secretion of bile. The secretion of the coloring-matter of the bile, the bilious acids and fats, remained unchanged. The ideas of using alkalies as cholagogues was, therefore, erroneous. The value of the alkalies consisted in the fact that they had a favorable influence on the catarrhal conditions of the intestines, the bile-ducts, and the gall-bladder, and that they diminished bilious secretion. As the alkalies undoubtedly increased the alkalinity of the blood, the bile secreted under their influence also had a stronger alkaline character, which was able to dissolve biliary concretions and to diminish biliary calculi, so that these could pass through the bile-duct.

THE PHARMACOLOGICAL PROPERTIES OF COLCHICINE.

Experiments have recently been made in the pharmacological laboratory of Strasburg by Dr. Jacobi, which have led the author to the following conclusions (*Gazette Médicale de Paris*, April 6, 1890):

1. Crystallized colchicine, prepared according to the formula of the French chemist Houde, is identical with colchicine studied in Germany by Zeissl.

2. Under the influence of nascent oxygen it is transformed into an oxidation product known under the name of oxydicolchicine.

3. Oxydicolchicine is likewise formed in the animal economy under the influence of the vital activity of the tissues.

4. Perfectly pure colchicine only produces feeble physiological effects on the frog.

5. On the contrary, oxydicolchicine, in doses of 1/6 grain, produces in the frog effects analogous to veratrine.

6. In warm-blooded animals the two substances produce similar effects both in point of view of intensity and character of action. There is excitation of the nervous apparatus of the intestinal walls which presides over peristaltic movements of the bowels. Disturbance of sensibility and modification of muscular power follow this action, while finally, as the result of progressive paralysis of the motor centres in the spinal cord and medulla oblongata, the animal finally perishes from the arrest of the functions of the respiratory centre.

CODEINE IN DISEASES OF WOMEN.

Following Lauder-Brunton's recommendation of codeine (*British Medical Journal*, January 9, 1888) for "pains in the bowels and lower part of the abdomen," Freund has made observations as to its usefulness in diseases of women. He finds that while in pain which proceeds from the uterus, codeia gives temporary relief; in exudations of the pelvic peritoneum and connective tissue and affections of the tubes it is useless. On the other hand, in ovarian troubles Freund finds it to be of great value. He gives three times daily 1 pill containing ½ grain of codeine. This dose promptly relieves all ovarian pain, whether of inflammatory origin or so-called simple neuralgia. The action of codeine is a purely local one. It does not stupify, above all things, nor does it interfere with the appetite or regular movement of the bowels.—*Medical Chronicle*, May, 1890.

PYOKTANIN—A NEW ANTISEPTIC.

Professor Stilling, who, with Dr. Wortmann, in Strasburg, has recently been subjecting aniline colors to extended study, has found that of the many of these colors which in gelatin cultures possess marked preventive influences on the development of bacteria, but few of them are suitable for use in medical practice (*Oestereich Zeit. f. Pharm.*). They nearly all, however, are extremely active antiseptics, and are especially suited for the treatment of suppurative wounds. Of these, pyoktanin (deriving its name from the two words meaning to destroy pus) is an antiseptic, which, according to Professor Stilling, is entirely free from unfavorable action, and is absolutely inodorous, while as a destroyer of bacteria in the living organism it is far more active than sublimate. The principal objection to its use is in the stain which it produces, although the color is readily washed off by means of soap and alcohol.

Two forms of pyoktanin occur in the market,—a blue and a yellow. Of these, the former seems specially designed for surgical employment, the latter for use in ophthalmic surgery. This substance is readily soluble in water and alcohol, in which the blue pyoktanin forms a beautiful blue solution. For employment it may be used in a two per cent. powder or .05 per cent. watery solution.

ANOTHER REMEDY FOR SWEATING FEET.

LEGOUX (*Les Nouveaux Remèdes*) recommends the following:

℞ Perchloride of iron, ʒiii;
Glycerin, ʒi;
Essence of bergamot, ʒii. Mix.
Apply with a pencil or swab.

—*National Druggist*, May, 1890.

TREATMENT OF THROAT-AFFECTIONS.

According to the Paris correspondent of the *British Medical Journal* for May 3, 1890, M. RUAULT has treated several cases of tonsillitis with naphthol; where sloughing seemed inevitable, doses of naphthol changed the aspect of the affected tissues, and suppuration was presented. M. Gouguenheim, at the recent Congress of Laryngology, mentioned several cases of pharyngitis successfully treated with phenol salicylate. Salol, he says, acts favorably on all forms of sore throat; pain and difficulty of swallowing are quickly relieved; the temperature is lowered; and, in most cases, the illness is cut short. M. Gouguenheim gives not less than 4 grammes (60 grains).

CANTHARIDES PLASTER.

It has recently been stated that under proper precautions a beautiful crop of micrococcus pyogenes aureus, or staphylococcus pyogenes aureus of Rosenbach, may be procured in a tube of sterilized nutrient fluid inoculated with material drawn from a cantharides plaster. As a result, a general warning was given to wholesale chemists on the importance of taking heed "where they get their tallow to prepare fly-blisters with." This serious warning, although undoubtedly well meant, appears to have been based upon insufficient consideration of the problem. Another correspondent very justly remarks that, according to the British Pharmacopœia, cantharides plaster is directed to be prepared not with tallow, but with yellow wax, prepared suet, prepared lard, and resin, and that these substances are submitted to considerable heat, whereas the cantharides powder is added, with stirring, while the mixture cools. Still, in spite of this inaccuracy, it is well known that troublesome pustulation frequently follows the application of cantharides plaster, and the presence of the micrococcus is extremely suggestive, whatever its ultimate source may be found to be. The question is too important to be allowed to resolve itself into an attack upon wholesale chemists; indeed, this would be manifestly unjust upon the very scanty data supplied. Before those responsible for alterations of the British Pharmacopœia issue their promised report, it is to be hoped that they will decide whether it is ever desirable to employ powdered cantharides in preference to liquid preparations.—*Lancet*, May 10, 1890.

FOR PERSISTENT COUGHS.

GUÉNEAU DE MUSSY prescribes the following pill:

℞ Purified tar, gr. xv;
Dover's powder, gr. xxii;
Benzoin, q.s.
Make into a mass, and divide into 20 pills, of which 1 may be given several times a day.

This pill is useful in chronic catarrhal bronchitis, with emphysema, or in any case where there is a persistent and tenacious cough. We would remind the reader that its tendency will be to constipate the bowels, and that this must be looked after in using the pill. Otherwise it is excellent.—*National Druggist*, May, 1890.

SALICYLATE OF MERCURY IN THE TREATMENT OF SYPHILIS.

In the selection of a mercurial preparation in the treatment of syphilis the choice naturally falls upon such a one as will act sufficiently energetically as to cause prompt action without unduly irritating the gastro-intestinal tract or affecting the economy in general. In a paper upon the clinical treatment of syphilis, published in the *Journal of Cutaneous and Genito-Urinary Diseases* for May, 1890, by DR. A. F. BUCHLER, the author states that, in an experience with thirty-two cases of syphilis treated with this compound,

he believes that the salicylate of mercury answers these requirements in a very high degree.

The ordinary dose prescribed was ⅓ of a grain, in pill or tablet form, three times a day; this caused not only a rapid involution of the cutaneous manifestations, but also in a like degree those of the mucous membranes.

In one case of a relapsing circinate papular syphilide of the face and forearm the lesion entirely disappeared after the patient had taken forty-five pills; in a case of papular syphilide of the palms, occurring sixteen months after infection, an equally good result was obtained from fifty pills.

Only in three instances was the course of treatment attended by symptoms of mercurialism. In one case a slight stomatitis was observed after the patient had taken twenty pills, and in two diarrhœa supervened, respectively, after thirty-six and fifty pills.

If comparisons are admissible, it would appear that in its therapeutic action the salicylate bears the closest analogy to the protiodide of mercury, over which, however, it apparently possesses the advantage of being better tolerated by the gastro-intestinal tract. On the other hand, it appears to be slower than the latter salt in reducing enlargements of the lymphatic glands.

Yet, on the enlargement of a physiologically closely allied organ—the spleen—it exerted a very favorable action. In five observations, where, with the onset of secondary symptoms, percussion showed an increased area of splenic dulness, a perceptible diminution in size was noted after the initiation of the course of treatment with salicylate of mercury.

THE TREATMENT OF ALCOHOLISM BY STRYCHNINE.

Dr. Pombrak, writing in the *Meditsinskoĕ Obozrênie* on alcoholism, describes seven cases treated by hypodermic injections of strychnine,—a method that seems especially in favor in Russia, where, however, it must be remembered, drunkenness presents, as a rule, forms somewhat different from those prevalent in this country. Dr. Pombrak found strychnine a very valuable remedy, both in cases of chronic alcoholism and in those of dipsomania, not merely curing the attacks, but abolishing the desire for drink. Even attacks of delirium tremens were influenced beneficially. The treatment must be carried out in a systematic manner, and must frequently be kept up for a very considerable period. As to the dose, Dr. Pombrak, in cases of moderate severity, commenced with $\frac{1}{80}$ of a grain; in more serious ones, with $\frac{1}{15}$. He found that, while the treatment was being carried out, there was no necessity to order the patients to abstain from the use of spirits, as they always did so of their own accord.—*Lancet*, May 3, 1890.

DYSPEPSIA.

Dujardin-Beaumetz offers the following powder as being very useful:

℞ Maltini,
Pulv. sodii bicarb., āā 1 gramme (gr. xv);
Magnesii calcinat., 2 grammes (gr. xxx);
Pulv. sacchari albi, 10 grammes (ʒiiss).
Misce bene et in pulv. no. xx. div.
Sig.—A powder after each meal.

—*Satellite*, April, 1890.

POISONING BY ANTIFEBRIN.

Dr. J. Vierhuff, of Subbath, in Courland, communicates to the *St. Petersburger Medicinische Wochenschrift* the notes of a case of antifebrin-poisoning, which show what dangers people run who dose themselves with drugs of this class. A healthy young married woman, who had been in the habit of taking antifebrin for headache, feeling the pain come on early one morning last summer took, fasting, about a teaspoonful of the drug in some water. In about ten minutes, the headache not being relieved, she repeated the dose, which her husband remarked might prove dangerous. She consequently took a glass of milk and some alum-water in order to produce vomiting, which she succeeded in doing, but immediately afterwards giddiness, singing in the ears, throbbing in the temples, and a dull pain in the head, together with a feeling of weakness, came on, and the face assumed a livid hue. When seen four hours after the drug had been taken, the face was a livid color, the lips blue, the pupils contracted, but the heart, temperature, and mental condition were normal. An aperient and a stimulant were ordered. Shortly afterwards the patient became suddenly collapsed, the pulse could not be counted, and the breathing was

very shallow; in fact, the woman appeared to be dying. The soles of the feet were brushed, vinegar was rubbed on the face, and cold water sprinkled over the face and chest; also a mixture of camphorated oil and ether was ordered for injecting subcutaneously. While this was being procured, several syringefuls of dilute spirit, which was all that could be obtained, were injected, and the patient was brought round, though for three hours and a half her condition appeared hopeless. Then, after recovering somewhat, collapse again came on, and recourse was had to an intravenous injection of a solution of common salt, which appeared to act most beneficially. In about fourteen hours after the drug had been taken the patient was out of danger. After that she continued to improve, though she complained of debility and pain in the limbs for a week. Dr. Vierhuff remarks that the serious symptoms were probably due largely to the patient's taking the antifebrin on an empty stomach.—*Lancet*, May 24, 1890.

THE GASTRIC FUNCTIONS IN DIABETES.

At the Ninth Congress of Internal Medicine at Vienna (*British Medical Journal*, May 3, 1890) Dr. Gans, of Carlsbad, said that last winter he carried out a number of experiments, in the laboratory of Boas, on the gastric functions in diabetes mellitus. The cases were ten in number. The contents of the stomach were withdrawn with a suction-pipe, after Ewald's *probefrühstück* had been taken, and were submitted to examination for total acidity, hydrochloric acid, lactic acid, diacetacetic acid, pepsin, ferments, etc. The acidity of the urine was also tested. The results were as follows: 1. The gastric secretion in diabetic patients varies greatly; normal conditions, hypersecretion, and total absence of hydrochloric acid were met with in different patients, and even in the same patient great differences in the secretion of HCl were met with. 2. The motor function of the stomach was quite normal in all the cases examined. 3. No relation was found between the function of the stomach and the percentage of sugar in the urine or the severity and duration of the disease. The fact already known empirically—namely, that in respect of diet each case of diabetes must be treated by itself—was thus for the first time proved experimentally to be correct.

THE COLD BATH IN SCARLET FEVER.

The good effect of cold immersion in severe scarlet fever was well illustrated in a case related by M. Dieulafoy at a recent meeting of the Paris Hospitals Medical Society (*Bull. et Mém. Soc. Méd. des Hôpitaux*, No. 15). The patient, a girl 16 years of age, was, on the sixth day of the fever, attacked by marked nervous symptoms, excitement, insomnia, suppression of urine, pulse from 120 to 150, and very high temperature. On the eighth day her condition was very grave, the eruption had disappeared, the temperature was 40.9° C. (105.6° F.), pulse irregular and intermittent, and the prostration extreme. In spite of the fact that she was menstruating, he advised the cold bath, and after some delay the friends of the patient permitted the measure. She was placed in a bath at 24° C. (75° F.), which caused severe shivering, cyanosis, and coldness of the extremities. But the pulse-rate fell from 150 to 100, and the delirium ceased. At the end of fifteen minutes she was removed from the bath, which was repeated three times during the night, at higher temperature. This treatment was continued up to the eleventh day, when the body temperature became normal. M. Dieulafoy advocated the bath in all malignant forms of fever, and its good effects in scarlet fever were endorsed by MM. Johel-Renoy and Duponchel, who had obtained similar good results. Dr. Huchard advised caffeine injections for the collapse.—*Lancet*, May 24, 1890.

IODOFORM EMULSION IN COLD ABSCESS.

Dr. Jasinski, of Cracow, has treated eighty-six cases of cold abscess by means of injections through a trocar of iodoform emulsion with encouraging results. A certain number were cured by a single injection, others after two or three injections. In eleven cases after the injection the abscess broke, a large quantity of pus mixed with iodoform being discharged. These were all cured without any further surgical interference. In nineteen cases an incision had to be made; the cavity was then washed out with carbolized water, iodoform emulsion injected, and the wound sewed up after a drainage-tube had been inserted. In some of these cases the injection had to be repeated several times. Though 180 grammes of a ten per cent. emulsion were injected at once, no toxic symptoms were ever observed.—*Lancet*, May 24, 1890.